

**Rico Surface Water Sampling
Supplemental Surface Water Quality Monitoring
Rico, Colorado
Data Summary Report**

**Prepared for:
Atlantic Richfield Company
900 East Benson Blvd
Anchorage, Alaska 99508**

Prepared by:



**977 West 2100 South
Salt Lake City, UT 84119
(801) 972-6222**

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Rico, Colorado
Surface Water Sampling Report
May 2011 Sampling Event

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1.0 Introduction

In accordance with the Rico Sampling and Analysis Plan for Supplemental Surface Water Quality Monitoring at Rico, CO prepared by AECOM, dated November 2010, the surface water sampling event was completed on May 25th and 26th, 2011. Sampling was completed by Anderson Engineering Co. Inc., by technicians who are familiar with the Rico sites and the BP Control of Work Management System. Surface water samples were collected from prescribed locations within the St. Louis settling pond system and at the system discharge (002) to the Dolores River (collectively referred to as the St. Louis pond system), and previously sampled locations along the Dolores River above, at and below the St. Louis pond system. Figure 1 and Figure 2 (see Appendix A) illustrate the location of the various sampling stations. Sample results are summarized and laboratory analytical results are attached with quality control documentation.

2.0 Field Sampling

2.1 Sampling Frequency

The sampling period represented by this sampling event is for the month of May of 2011. Sampling will be performed on a monthly basis until at least April of 2012

2.2 Water Quality and Flow Measurement Sampling Locations

Samples were collected from the locations described on Table 1 and shown on Figure 1 and Figure 2 in Appendix A.

The Dolores River was sampled above the St. Louis pond system, and below the adit outfalls downstream of the reclaimed Silver Swan Mine area. The river was also sampled at the USGS gaging station downstream of the Silver Swan site.

TABLE 1 - Sample Location Summary

SITE ID	SITE DESCRIPTION
DR-4-SW	Dolores River below Silver Swan
DR-1	Dolores River above St. Louis settling pond system
DR-2	Dolores River immediately above the St. Louis settling pond system outfall
DR-3	St. Louis tunnel discharge at adit
DR-4	Discharge of Pond 15
DR-5	Discharge of Pond 8
DR-6	St. Louis settling pond system outfall to the Dolores River
DR-7	Dolores River below St. Louis settling pond system outfall
DR-G	Dolores River at USGS gaging station #09165000

2.3 Sampling Station Descriptions

The sampling requirements and stations are described in detail below:

DR-4-SW. Dolores River below Silver Swan. Sampling/flow measurement location is on the Dolores River below the Silver Swan site just downstream of a bend in the river and below a cemetery on the east bank. Flow measurements was collected by flowmeter.

DR-1. Dolores River above St. Louis settling ponds system. The sampling/flow measurement location is on the Dolores River approximately 50 feet upstream of the Rico Ranger Station. Flow measurements was collected by flowmeter.

DR-2. Dolores River immediately above the St. Louis settling pond system outfall. Sampling/flow measurement location is on the Dolores just above the 002 discharge outfall, and upstream of the hot tub discharge. The site is located directly adjacent to the thermal discharge which supplies the hot tub. Flow measurement was collected by flowmeter.

DR-3. St. Louis tunnel discharge at adit entrance. Sampling location is at the inlet of the flume, just before the throat. Flow measurement by an installed 9" flume at the sampling location.

DR-4. Discharge of Pond 15. Flow measurement was collected by flowmeter.

DR-5. Discharge of Pond 8. Flow measurement was collected by flowmeter.

DR-6. St. Louis settling ponds system outfall to the Dolores River (Outfall 002). Flow measurement by installed 9" flume.

DR-7. Dolores River below St. Louis settling ponds system outfall. Sampling/flow measurement location is located just off the entrance road to the St. Louis ponds site where the Dolores River is adjacent to the entrance road. The site is located approximately 75 feet downstream from a large bend in the river that first brings the Dolores adjacent to the entrance road. Flow measurements was collected by flowmeter.

DR-G. Located at the USGS gauging station #09165000. Flow measurements was collected by flowmeter.

3.0 Sampling and Analysis Parameters and Methods

All samples were collected as grab samples. Samples were collected from well-mixed locations, which are representative of conditions within the flow stream. Lab-certified plastic bottles were used to collect sample water for analyses. Clean hands, dirty hands procedures were followed throughout the sampling. For quality control purposes, one duplicate sample and one field blank were included with the water samples being submitted to the laboratory for analysis.

Lab-certified plastic bottles were used to collect all water samples. Sample water was first collected in clean plastic jugs, and within 10 minutes, placed in the sampling bottles. A 500 mL HDPE bottle was used to collect a sample for alkalinity, TDS, TSS, and sulfate analyses. A 250 mL HDPE bottle was used to collect a sample for salinity analysis. Sample water for dissolved metals analysis and potentially dissolved metals analysis was filtered through a 0.45 μ m filter into a 250 mL sample bottle containing nitric acid preservative. Sample water for total recoverable metals analysis and water hardness was collected without filtration in a 250 mL HDPE sample bottle containing nitric acid preservative. Sample water for cyanide analysis was collected without filtration into a 250 mL HDPE sample bottle containing sodium hydroxide preservative.

Field parameters were measured at the time of sample collection. Field measurement data for pH, temperature, conductivity, and dissolved oxygen were recorded using an EXTECH Instruments DO610 ExStik II DO/pH/Conductivity kit, and results were logged in the field log book. The field instrument was calibrated prior to use with equipment calibration and maintenance standard solutions and consistent with manufacturer's instructions. Weather parameters including temperature and precipitation were obtained and documented.

All sample bottles were labeled to identify sample number, date and time of collection, type of analysis, and appropriate preservative. In addition, sample analysis/chain of custody forms were completed and processed at the time of sample collection. Original chain of custody forms are signed, dated, and placed in the sample container prior to sealing the container for shipment.

Water samples were kept in cooled containers and sent to the analytical laboratory. Samples were submitted to Pace Analytical Laboratories in Lenexa, Kansas for analysis by analytical procedures listed on Table 2. Analysis was performed according to methods specified in 40 CFR, Part 136 or other methods approved by the EPA. Laboratory methods and reporting limits for all parameters are presented in Table 2. Laboratory results and supporting documentation including quality assurance results are contained in the Appendix C and Appendix D of this report.

TABLE 2 - Analytical Procedures Summary

Parameter	Detection Limit (MDL)	Method
Field Parameters		
pH (s.u.)	+/- 0.01 pH	EPA 150.2
Temperature (°C)	+/- 1°C	Standard Method 2550
Conductivity ($\mu\text{mhos}/\text{cm}$)	+/- 2% Full Scale	EPA 120.1
Dissolved Oxygen	+/- 2% Full Scale	SM 4500-OG
Non-Metals		
Alkalinity (mg/L as CaCO_3)	RL – 20 mg/L	EPA 310.1
Hardness (mg/L as CaCO_3)	RL – 0.5 mg/L	SM 2340 B
Total Dissolved Solids (mg/L as TDS)	RL – 5.0 mg/L	SM 2540C
Total Suspended Solids (mg/L as TSS)	RL – 5.0 mg/L	SM 2540D
Cyanide ($\mu\text{g}/\text{L}$ as CN)	RL – 0.005 mg/L	EPA 335.4
Salinity	RL – 6 mg/L	SM 2510B (calculated)
Sulfate (mg/L as SO_4)	RL – 1 mg/L	EPA 300.0
Total and Dissolved Metals		
Aluminum ($\mu\text{g}/\text{L}$ as Al)	2 $\mu\text{g}/\text{L}$	EPA 200.8
Antimony ($\mu\text{g}/\text{L}$ as Sb)	0.07 $\mu\text{g}/\text{L}$	EPA 200.8
Arsenic ($\mu\text{g}/\text{L}$ as As)	0.09 $\mu\text{g}/\text{L}$	EPA 200.8
Barium ($\mu\text{g}/\text{L}$ as Ba)	0.08 $\mu\text{g}/\text{L}$	EPA 200.8
Beryllium ($\mu\text{g}/\text{L}$ as Be)	0.02 $\mu\text{g}/\text{L}$	EPA 200.8
Cadmium ($\mu\text{g}/\text{L}$ as Cd)	0.03 $\mu\text{g}/\text{L}$	EPA 200.8
Calcium ($\mu\text{g}/\text{L}$ as Ca)	10 $\mu\text{g}/\text{L}$	EPA 200.8
Chromium (ug/l as Cr)	0.25 ug/L	EPA 200.8
Copper ($\mu\text{g}/\text{L}$ as Cu)	0.07 $\mu\text{g}/\text{L}$	EPA 200.8
Iron ($\mu\text{g}/\text{L}$ as Fe)	4.67 $\mu\text{g}/\text{L}$	EPA 200.8
Lead ($\mu\text{g}/\text{L}$ as Pb)	0.05 $\mu\text{g}/\text{L}$	EPA 200.8
Magnesium ($\mu\text{g}/\text{L}$ as Mg)	2.5 $\mu\text{g}/\text{L}$	EPA 200.8
Manganese ($\mu\text{g}/\text{L}$ as Mn)	0.17 $\mu\text{g}/\text{L}$	EPA 200.8
Mercury ($\mu\text{g}/\text{L}$ as Hg)	0.049 $\mu\text{g}/\text{L}$	EPA 245.1
Nickel ($\mu\text{g}/\text{L}$ as Ni)	0.07 $\mu\text{g}/\text{L}$	EPA 200.8
Potassium ($\mu\text{g}/\text{L}$ as K)	10 $\mu\text{g}/\text{L}$	EPA 200.8
Selenium (ug/l as Se)	0.22 ug/L	EPA 200.8
Silver (ug/L as Ag)	0.25 ug/L	EPA 200.8
Sodium ($\mu\text{g}/\text{L}$ as Na)	25 $\mu\text{g}/\text{L}$	EPA 200.8
Thallium ($\mu\text{g}/\text{L}$ as Tl)	0.05 ug/L	EPA 200.8
Vanadium ($\mu\text{g}/\text{L}$ as V)	0.05 ug/L	EPA 200.8
Zinc ($\mu\text{g}/\text{L}$ as Zn)	2.5 $\mu\text{g}/\text{L}$	EPA 200.8

4.0 Flow Measurement Methods

Flows were measured at the river sampling locations where accessible. The flow measurements obtained this sampling period are described in Section 2.3. Flow velocity was measured for sampling locations DR-1, DR-2, DR-3, DR-4, DR-5, DR-6, DR-7, DR-4-SW, and DR-G. Cross-sectional areas could be safely obtained at all river sample locations (DR-1, DR-2, DR-7, DR-4-SW, AND DR-G) and at the discharge spillway of pond 8 (DR-5). Refer to Figures 3 through 8 in Appendix E for these cross sections. The flowrates are presented on Table 3 in Appendix B.

Flowrates collected during this sampling event were taken by use of a Marsh-McBirney Flow-Mate Model 2000 portable flow meter using the six-tenths-depth method. This method uses the velocity at six-tenths of the depth as the mean velocity. This method is generally reliable between depths from 0.3 feet to 2.5 feet. Stream sections were selected with the desired characteristics of parallel flows, smooth streambed with minimal obstructions, a straight channel, and a flat streambed. The stream section, perpendicular to the flow was measured in feet. The width of the section was determined and divided into several vertical sections. Flow measurements of velocity (by the six-tenths-depth method) and water depth were measured at each vertical section using the Marsh-McBirney flow meter and wading rod assembly. The flow meter was set to the 5 second fixed period average mode. A minimum of three velocity readings were recorded at each vertical section. Flows were calculated for each stream section using the water depth, horizontal distance, and averaged velocity data.

The St. Louis tunnel flow (DR-3) and St. Louis pond discharge (DR-6) currently have Parshall flumes installed. Flow measurements can be determined at these flumes when the depth of flow is known at a particular point. In order to continuously monitor and measure the depth of flow, depth measurement devices were installed on May 11th, 2011 and May 12th, 2011 at both the north and south flumes. An STI Ultrasonic IRU-5180 automated water level detector was installed at the north Parshall flume. It is suspended over the flow stream and measures the distance from the sensor to the water surface using ultrasonic sound waves. It then uses that value to determine the depth of flow, and reports it. The south flume has a submersible pressure transducer called the OTT Orpheus Mini. It records deviations from a pre-programmed depth of air space from the top edge of the flume down to the water level. Knowing then the total depth of the flume, the depth of flow can be determined. The post processed data for these two devices for the Month of May, 2011 is given in Appendix I and Appendix J.

5.0 Analytical Results

The results of the laboratory analysis are summarized on Table 4 in Appendix B. The data is organized by sample location. The laboratory results report is contained in Appendix C.

6.0 Quality Control

In addition to the standard laboratory Quality Control (QC), field QC samples for this sampling event included a field duplicate and a Field Blank (FB).

6.1 Field QC

A field duplicate water sample was collected from sample location DR-3. During sample collection, the duplicate sample bottles were filled simultaneously from the discharge stream of water. The duplicate sample was submitted to the analytical laboratory with the label of DR-8, so as to serve as a "blind duplicate."

Table 5 compares the analytical results from DR-3 and DR-8 and presents the Relative Percent Difference (RPD). The RPD for aqueous samples should be +/- 20%. All comparative values were within +/-20% with the exception of beryllium, alkalinity, and TSS.

TABLE 5 - Duplicate of DR-3, Relative Percent Difference (RPD)

Analyte (Total)	DR-3 ($\mu\text{g/L}$)	DR-8 ($\mu\text{g/L}$) Duplicate of DR-3	RPD (%)
Aluminum	366	375	2.43
Antimony	<0.50	<0.50	0.00
Arsenic	<0.50	<0.50	0.00
Barium	20.1	20.3	0.99
Beryllium	0.53	0.66	21.85
Cadmium	44.0	43.5	-1.14
Calcium	254000	238000	-6.50
Chromium	<0.50	1.0	0.00
Copper	94.0	94.1	0.11
Iron	3140	3100	-1.28
Lead	2.3	2.7	16.00
Magnesium	21500	20200	-6.24
Manganese	2740	2680	-2.21
Mercury	<0.20	<0.20	0.00
Nickel	6.8	6.7	-1.48
Potassium	1590	1540	-3.19
Selenium	<0.50	<0.50	0.00
Silver	<0.50	<0.50	0.00
Sodium	9880	10200	3.19
Thallium	<0.10	<0.10	0.00
Vanadium	<0.10	<0.10	0.00
Zinc	7830	7760	-0.90
Alkalinity (mg/L)	95.0	118	21.60
Hardness	723000	679000	-6.28
TDS (mg/L)	988	1030	4.16
TSS (mg/L)	14.0	10	-33.33
Cyanide	0.011	<0.0050	0.00
Salinity (mg/L)	716	731	2.07
Sulfate (mg/L)	577	571	-1.05

A Field Blank (FB) was collected by pouring distilled water through the filtering manifold after the first day of sampling and decontaminating the equipment. The FB was analyzed for the same constituents as the other samples. The FB had below detectable concentrations for all metals. The pH was neutral, the Electrical Conductivity (EC) was non-detectable, and it showed a low level of alkalinity.

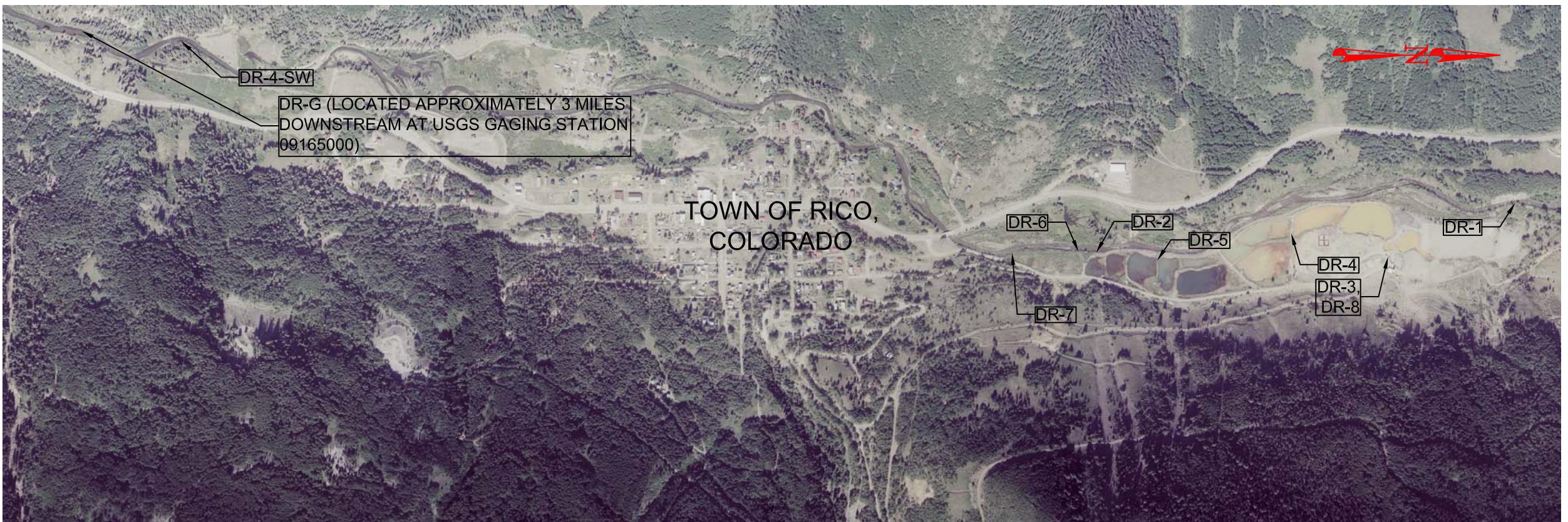
6.2 Laboratory QC

The laboratory control sample (LCS), method blank, matrix spike, and matrix spike duplicate sample results were all within the established limits of concentration, percent recovery, and relative percent difference, with several minor exceptions under the following:

- The original result from the Matrix Spike/Matrix Spike Duplicate for antimony, arsenic, and silver was above the adjusted method detection limit and below the adjusted reporting limit.
- For the Matrix Spike/Matrix Spike Duplicate for Aluminum, the relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
- For the Matrix Spike Sample for magnesium, dissolved calcium, dissolved magnesium, dissolved manganese, and dissolved zinc, and for Matrix Spike/Matrix Spike Duplicate for dissolved calcium, dissolved magnesium, dissolved potassium, dissolved sodium, and mercury, the matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- For the Matrix Spike Sample for calcium and zinc, analyte concentration exceeded the calibration range. The reported result is estimated.
- For the Matrix Spike Sample for calcium, manganese, and zinc, the matrix spike and Matrix spike duplicate recovery was not evaluated against control limits due to sample dilution.
- For the Sample Duplicate for cyanide, the RPD value was outside control limits.

QC results are summarized in Tables 6 through 9 in Appendix B with the full laboratory QC results presented in Appendix D.

Appendix A
Sampling Location Maps



General Notes

Scale in Feet
0 500 1000

No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY



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DRAWN BY: MAD

ENGINEER: CS, MAD

APPROVED:

RICO SURFACE
WATER SAMPLING

SURFACE WATER
SAMPLING LOCATIONS

RICO, CO

Project	Figure
Date 09-FEB-2011	
Scale 1" = 1000'	1



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General Notes

Scale in Feet
0 175 350

No.	Revision/Issue	Date

ATLANTIC RICHFIELD
COMPANY



ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD

ENGINEER: CS, MAD

APPROVED:

RICO SURFACE
WATER SAMPLING

ST. LOUIS POND AREA
SAMPLING LOCATIONS

RICO, CO

Project	Figure
Date 09-FEB-2011	
Scale 1" = 350'	2

Appendix B

Data Tables

TABLE 3 - Sampling Field Data and Station Information Summary

	Field Measurements				GPS Location							
Sample Location	pH	Temp (°C)	EC (mS/cm)	Dissolved Oxygen (ppm)	Latitude	Longitude	Date	By	Stream Cross section area (ft^2)	Flowrate (cfs)	Comments	
DR-4-SW	7.52	4.1	0.1716	1.49	37°40'49.4" N	108°02'09.0" W	5/26/2011	Tim Barbee, Ted Barbee	71.5	283	Cross section on the Dolores River approximately 100 below the Silver Swan site. Flow measurement by flow meter.	
DR-1	6.26	3.7	0.1322	1.5	37°42'37.6" N	108°01'56.0" W	5/25/2011	Tim Barbee, Ted Barbee	62.0	286	Cross section on the Dolores River above St. Louis settling pond system (approximately 800 ft north of the northern edge of Pond 18). Due to high velocity in river, velocity measurements were performed by flotation method (confirmed by Manning's equation).	
DR-2	6.24	2.7	0.137	1.51	37°42'03.96" N	108°01'49.89" W	5/25/2011	Tim Barbee, Ted Barbee	81.5	286	Cross section on the Dolores River, approximately 150 ft north of system outfall. Flow measurement by flow meter.	
DR-3	6.82	15.2	1.166	0.64	37°42'27.5" N	108°01'50.3" W	5/25/2011	Tim Barbee, Ted Barbee	NA	1.39	St Louis adit discharge. Flow measurement by installed Parshall Flume.	
DR-4	7.54	10.0	1.209	0.84	37°42'19.7" N	108°01'52.7" W	5/25/2011	Tim Barbee, Ted Barbee	0.272	1.53	Pond 15 discharge. Flow measurement by flow meter.	
DR-5	7.43	7.9	1.389	1.13	37°42'08.8" N	108°01'49.7" W	5/25/2011	Tim Barbee, Ted Barbee	15.4	2.61	Pond 8 was discharging at multiple small locations as well as the spillway. Flow velocity measurements were collected at the spillway and at two other flow paths. Due to the shallow water and multiple paths, accurate flow measurements could not be determined for this sampling location and period. Flow measurements were take at major flow paths by flow meter and by visual estimation.	
									-	1.25		
									-	0.67		
DR-6	6.96	7.4	1.370	1.13	37°42'02.4" N	108°01'50.2" W	5/26/2011	Tim Barbee, Ted Barbee	NA	1.42	Outfall to Dolores River. Flow measurement by installed Parshall Flume.	
DR-7	7.61	4.3	0.209	1.44	37°41'57.12" N	108°01'49.63" W	5/26/2011	Tim Barbee, Ted Barbee	99.8	287	Cross section on the Dolores River, approximately 500 ft below St. Louis settling pond system outfall. Flow measurement by flow meter.	
DR-8	6.82	15.2	1.166	0.64	37°42'27.5" N	108°01'50.3" W	5/25/2011	Tim Barbee, Ted Barbee	NA	1.39	DR-8 is a duplicate sample of DR-3. See comments for DR-3.	
DR-G	6.41	5.3	0.240	1.39	37°38'19.8" N	108°03'36.5" W	5/26/2011	Tim Barbee, Ted Barbee	70.0	276	Cross section on the Dolores River at USGS gauging station #09165000, approximately 3.5 miles downstream of the Silver Swan site	
FB	6.97	11.2	0.0	1.01	N/A	N/A	5/26/2011	Tim Barbee, Ted Barbee	NA	NA	Field blank	



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TABLE 4 - Analytical Sampling Results Summary

Metals (ug/L)																									Non-Metals (mg/L, unless otherwise indicated)										Field Parameters					
DR-4-SW: Delores River below Silver Swan		Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness (ug/L as CaCO3)	TDS	TSS	Cyanide	Salinity	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)				
DR-4-SW	5/26/11	Total	445	<0.50	<0.50	52.7	<0.20	0.38	34600	0.59	2.1	365	0.68	4200	44.2	<0.20	0.66	676	<0.50	<0.50	1650	<0.10	0.86	67.9	66.5	104000	39.0	14.0	<0.0050	119	20.9	7.52	4.1	0.1716	1.49					
DR-4-SW D	5/26/11	Dissolved	31.4	<0.50	<0.50	51.1	<0.20	0.32	28300	<0.50	2.0	51.2	0.13	4090	35.2	<0.20	0.69	591	<0.50	<0.50	1760	<0.10	0.17	58.4																
DR-1: Delores River above St. Louis settling pond system		Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness (ug/L as CaCO3)	TDS	TSS	Cyanide	Salinity	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)				
DR-1	5/25/11	Total	397	<0.50	<0.50	56.6	<0.20	<0.080	27900	0.52	0.93	292	0.41	3920	10.3	<0.20	0.58	631	<0.50	<0.50	1580	<0.10	0.8	<5.0	79.8	85900	97.0	14.0	<0.0050	101	11.5	6.26	3.7	0.1322	1.50					
DR-1 D	5/25/11	Dissolved	35.8	<0.50	<0.50	55.4	<0.20	<0.080	24700	<0.50	0.84	<30.0	<0.10	3980	5.9	<0.20	1.1	581	<0.50	<0.50	1810	<0.10	0.22	<5.0																
DR-2: Delores River immediately above the St. Louis settling pond system outfall		Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness (ug/L as CaCO3)	TDS	TSS	Cyanide	Salinity	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)				
DR-2	5/25/11	Total	407	<0.50	<0.50	55.1	<0.20	<0.080	30600	0.55	1.1	298	0.43	3960	23.8	<0.20	<0.50	667	<0.50	<0.50	1640	<0.10	0.82	6.3	68.4	92900	466	6.0	<0.0050	106	16.3	6.24	2.7	0.137	1.51					
DR-2 D	5/25/11	Dissolved	34.0	<0.50	<0.50	54.7	<0.20	<0.080	26500	<0.50	0.90	<50.0	<0.10	4060	18.6	<0.20	1.1	595	<0.50	<0.50	1750	<0.10	0.21	<5.0																
DR-3: St. Louis tunnel discharge at adit		Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness (ug/L as CaCO3)	TDS	TSS	Cyanide	Salinity	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)				
DR-3	5/25/11	Total	366	<0.50	<0.50	20.1	0.53	44.0	254000	<0.50	94.0	3140	2.3	21500	2740	<0.20	6.8	1590	<0.50	<0.50	9880	<0.10	<0.10	7830	95.0	723000	988	14.0	0.011	716	577	6.82	15.2	1.166	0.64					
DR-3 D	5/25/11	Dissolved	56.2	<0.50	<0.50	20.7	0.39	43.7	244000	<0.50	26.7	497	0.11	21700	2760	<0.20	7.4	1620	<0.50	<0.50	9750	<0.10	<0.10	7830																
DR-4: Discharge of Pond 15		Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness (ug/L as CaCO3)	TDS	TSS	Cyanide	Salinity	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)				
DR-4	5/25/11	Total	213	<0.50	<0.50	20.6	0.32	38.8	238000	<0.50	59.8	1820	1.2	21200	2410	<0.20	7.3	1590	<0.50	<0.50	9580	<0.10	<0.10	6520	87.4	682000	1020	11.0	<0.0050	773	576	7.54	10.0	1.209	0.84					
DR-4 D	5/25/11	Dissolved	4.8	<0.50	<0.50	20.1	<0.20	36.5	239000	<0.50	7.1	<50.0	<0.10	21200	2480	<0.20	7.0	1620	<0.50	<0.50	9660	<0.10	<0.10	6010																
DR-5: Discharge of Pond 8		Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness (ug/L as CaCO3)	TDS	TSS	Cyanide	Salinity	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)				
DR-5	5/25/11	Total	96.5	<0.50	<0.50	19.9	0.20	30.6	252000	<0.50	23.0	1060	0.71	22400	2240	<0.20	5.5	1890	0.52	<0.50	10400	<0.10	<0.10	5130	72.2	722000	995	<5.0	<0.0050	738	558	7.43	7.9	1.389	1.13					
DR-5 D	5/25/11	Dissolved	<4.0	<0.50	<0.50	20.3	<0.20	29.2	251000	<0.50	3.8	<50.0	<0.10	23500	2230	<0.20	6.2	1920	<0.50	<0.50	10200	<0.10	<0.10	5040																
DR-6: St. Louis settling pond system outfall to the Delores River (Outfall 002)		Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness (ug/L as CaCO3)	TDS	TSS	Cyanide	Salinity	Sulfate	pH	Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (ppm)				
DR-6	4/15/11	Total	35.5	<0.50	<0.50	20.8	<0.20	24.0	263000	<0.50	8.5	536	0.44	24900	2000	<0.20	4.9	2770	0.53	<0.50	13600	<0.10	<0.10	4070	144	759000	1000	<5.0	<0.0050	849	584	6.96	7.4	1.37	1.13					
DR-6 D	4/16/11	Dissolved	<4.0	<0.50	<0.50	20.8	<0.20	23.9	269000	<0.50	2.4	<50.0	<0.10	25700	1950	<0.20	5.4	2680	<0.50	<0.50	12700	<0.10	<0.10	4290																
DR-7: Delores River below St. Louis settling pond system outfall		Date Collected	Fraction	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness (ug/L as CaCO3)	TDS	TSS	Cyanide	Salinity	Sulfate	pH	Temperature (°						

Rico Colorado Surface Water Sampling QC Results - May 2011 Sampling
Results in ug/L (unless otherwise indicated)

TABLE 6 - Method Blank

Description	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide	Sulfate	
QC Sample	MB-987424	MB-988864	MB-987424	MB-826843	MB-987424	MB-823954	MB-823465	MB-826788	MB-827998																			
Units	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L																						
Date	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/8/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/7/2011	6/8/2011	6/7/2011	6/2/2011	6/2/2011	6/8/2011	6/9/2011		
Time	8:52	8:52	8:52	8:52	8:52	8:52	8:52	8:52	8:52	8:52	8:52	8:52	12:51	8:52	8:52	8:52	8:52	8:52	8:52	8:52	8:52	12:45	8:52	15:55	13:03	16:27	16:58	
Result	ND	ND	ND	ND	ND																							
RL	4.0	0.50	0.50	0.30	0.20	0.080	20.0	0.50	0.50	50.0	0.10	5.0	0.50	0.20	0.50	20.0	0.50	50.0	0.10	0.10	5.0	20.0	71.0	5.0	5.0	0.0050	1.0	
Qualifiers																									-	-	-	
Dissolved																												
QC Sample	MB-987419	MB-990673	MB-987419	-	-	-	-	-																				
Units	µg/L	-	-	-	-	-																						
Date	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/10/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	6/4/2011	-	-	-	-	-	
Time	20:26	20:26	20:26	20:26	20:26	20:26	20:26	20:26	20:26	20:26	20:26	9:07	20:26	20:26	20:26	20:26	20:26	20:26	20:26	20:26	20:26	-	-	-	-	-		
Result	ND	-	-	-	-	-																						
RL	4.0	0.50	0.50	0.30	0.20	0.080	20.0	0.50	0.50	50.0	0.10	5.0	0.50	0.20	0.50	20.0	0.50	50.0	0.10	0.10	5.0	-	-	-	-	-		
Qualifiers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Sample Duplicate																												
QC Sample	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MB-823955	MB-823466	-	-	
Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	mg/L	mg/L	-	-	
Original Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2850.0	27.0	-	-	
Dup Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2870.0	25.0	-	-	
RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8	-	-	
Max RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	25	-	-	
Qualifiers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sample Duplicate																												
QC Sample	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MB-823956	MB-823467	-	-
Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	mg/L	mg/L	-	-	
Original Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	110.0	158.0	-	-	
Dup Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	108.0	168.0	-	-	
RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	6	-	-	
Max RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	25	-	-	
Qualifiers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.
 ND - Not Detected at or above adjusted reporting limit.
 J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
 MDL - Adjusted Method Detection Limit.
 S - Surrogate
 1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.
 Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
 LCS(D) - Laboratory Control Sample (Duplicate)
 MS(D) - Matrix Spike (Duplicate)
 DUP - Sample Duplicate
 RPD - Relative Percent Difference
 NC - Not Calculable.
 SG - Silica Gel - Clean-Up
 U - Indicates the compound was analyzed for, but not detected.
 N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
 Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City
 PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

D6 - The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
 E - Analyte concentration exceeded the calibration range. The reported result is estimated.
 M1 - Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
 M6 - Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
 R1 - RPD value was outside control limits.



Rico Colorado Surface Water Sampling QC Results - May 2011 Sampling
Results in ug/L (unless otherwise indicated)

TABLE 7 - Laboratory Control Sample

Description	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide	Sulfate	
QC Sample	LCS-987425	LCS-988865	LCS-987425	-	-	LCS-826844	LCS-987425																						
Units	µg/L	-	-	mg/L	mg/L																								
Spike Conc.	80	80	80	80	80	80	1000	80	80	1000	80	1000	80	5	80	1000	80	80	1000	80	80	1000	80	500	-	-	-	0.1	5
LCS Result	82.0	80.6	82.4	80.3	91.2	80.5	1010	80.8	82.8	1060	81.9	988	81.3	5.2	82.4	1010	82.8	86.5	992	82.2	81.4	81.0	464	6600	-	-	0.10	4.8	
LCS % Rec	103	101	103	100	114	101	101	101	104	106	102	99	102	103	103	101	103	108	99	103	102	101	93	-	-	-	104	97	
% Rec Limits	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	90-110	-	-	69-126	90-110		
Qualifiers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Dissolved																													
QC Sample	LCS-987420	LCS-990674	LCS-987420	-	-	-	-	-																					
Units	µg/L	-	-	-	-	-																							
Spike Conc.	80	80	80	80	80	80	1000	80	80	1000	80	1000	80	5	80	1000	80	80	1000	80	80	1000	80	-	-	-	-	-	
LCS Result	86.5	82.3	85.4	84.0	76.7	82.5	1100	82.1	81.6	1040	82.8	1070	82.1	5.3	82.3	1040	84.1	85.8	1070	83.5	80.5	80.0	-	-	-	-	-		
LCS % Rec	108	103	107	105	96	103	110	103	102	104	104	107	103	105	103	104	105	107	104	101	100	-	-	-	-	-	-	-	
% Rec Limits	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	85-115	90-110	-	-	69-126	90-110		
Qualifiers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Sample Duplicate																													
QC Sample	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LCS-826845	-		
Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	mg/L	-		
Original Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	281	-		
Dup Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	274	-		
RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-		
Max RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1/9/1900	-		
Qualifiers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Sample Duplicate																													
QC Sample	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	LCS-826846	-		
Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	mg/L	-		
Original Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	251	-		
Dup Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	243	-		
RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-		
Max RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-		
Qualifiers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.
 ND - Not Detected at or above adjusted reporting limit.
 J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
 MDL - Adjusted Method Detection Limit.
 S - Surrogate
 1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.
 Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
 LCS(D) - Laboratory Control Sample (Duplicate)
 MS(D) - Matrix Spike (Duplicate)
 DUP - Sample Duplicate
 RPD - Relative Percent Difference
 NC - Not Calculable.
 SG - Silica Gel - Clean-Up
 U - Indicates the compound was analyzed for, but not detected.
 N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
 Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

D6 - The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
 E - Analyte concentration exceeded the calibration range. The reported result is estimated.
 M1 - Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
 M6 - Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
 R1 - RPD value was outside control limits.



Rico Colorado Surface Water Sampling QC Results - May 2011 Sampling
Results in ug/L (unless otherwise indicated)

TABLE 9 - Matrix Spike Sample

Description	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Alkalinity	Hardness	TDS	TSS	Cyanide	Sulfate
QC Sample	MSS-987428	MSS-988868	MSS-987428	-	MSS-987428	-	-	MSS-826790	MSS-828002																			
Units	µg/L	µg/L	-	µg/L	-	-	mg/L	mg/L																				
Original Result	366	ND	ND	20.1	0.53	44.0	254000	ND	94	3140	2.3	21500	2740	ND	6.8	1590	ND	ND	9880	ND	ND	7830	-	72300	-	-	0.0084	584
Spike Conc.	80	80	80	80	80	80	1000	80	80	1000	80	1000	80	5	80	1000	80	80	1000	80	80	80	-	-	-	-	0.1	250
MSS Result	462	81.3	84.2	103	75.0	125	247000	81.1	180	4140	82.5	22000	2770	5.7	89.8	2590	85.0	83.4	11100	81.4	83.2	7650	-	708000	-	-	0.083	806
MSS % Rec	119	101	105	103	93	101	-685	101	107	100	100	48	37	112	104	100	106	104	125	102	104	-229	-	-	-	-	74	89
% Rec Limits	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	-	-	-	-	41-136	61-119	
Qualifiers	-	-	-	-	-	-	E, M6	-	-	-	-	M1	M6	-	-	-	-	-	-	-	-	E, M6	-	-	-	-	-	
Dissolved																												
QC Sample	MSS-987423	-	-	-	-	-	-																					
Units	µg/L	µg/L	-	-	-	-	-	-																				
Original Result	ND	ND	ND	20.3	ND	29.2	251000	ND	3.8	ND	ND	23500	2230	<0.037	6.2	1920	ND	ND	10200	ND	ND	5040	-	-	-	-	-	-
Spike Conc.	80	80	80	80	80	80	1000	80	80	1000	80	1000	80	5	80	1000	80	80	1000	80	80	80	-	-	-	-	-	-
MSS Result	92.0	82.1	86.3	103	72.8	112	242000	81.0	84.3	1040	79.0	23700	2280	5.1	86.4	3010	83	74.4	11100	79.8	79.2	4940	-	-	-	-	-	-
MSS % Rec	111	102	108	103	91	103	-945	101	101	103	99	24	63	101	100	110	103	93	97	100	99	-119	-	-	-	-	-	-
% Rec Limits	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	70-130	-	-	-	-	-	-	
Qualifiers	-	-	-	-	-	-	M1	-	-	-	-	M1	M1	-	-	-	-	-	-	-	-	M1	-	-	-	-	-	
Sample Duplicate																												
QC Sample	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	MSS-826791	-	
Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	mg/L	-	
Original Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.011	-	
Dup Result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.011	-	
RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	
Max RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	-	
Qualifiers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.
 ND - Not Detected at or above adjusted reporting limit.
 J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
 MDL - Adjusted Method Detection Limit.
 S - Surrogate
 1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.
 Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
 LCS(D) - Laboratory Control Sample (Duplicate)
 MS(D) - Matrix Spike (Duplicate)
 DUP - Sample Duplicate
 RPD - Relative Percent Difference
 NC - Not Calculable.
 SG - Silica Gel - Clean-Up
 U - Indicates the compound was analyzed for, but not detected.
 N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
 Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City
 PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

D6 - The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
 E - Analyte concentration exceeded the calibration range. The reported result is estimated.
 M1 - Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
 M6 - Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
 R1 - RPD value was outside control limits.



Appendix C

Project Narrative and Laboratory Analytical Reports

June 14, 2011

Mark DeFriez
Anderson Engineering Company I
977 W 2100 S.
Salt Lake City, UT 84119

RE: Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Dear Mark DeFriez:

Enclosed are the analytical results for sample(s) received by the laboratory on June 01, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Colleen Koporc

colleen.koporc@pacelabs.com
Project Manager

Enclosures

cc: Kevin B. Cosper, Anderson Engineering Company Inc.

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: RICO SURFACE WATER SAMPLING
 Pace Project No.: 6099946

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
 A2LA Certification #: 2926.01
 Alaska Certification #: UST-078
 Alaska Certification #MN00064
 Arizona Certification #: AZ-0014
 Arkansas Certification #: 88-0680
 California Certification #: 01155CA
 EPA Region 8 Certification #: Pace
 Florida/NELAP Certification #: E87605
 Georgia Certification #: 959
 Idaho Certification #: MN00064
 Illinois Certification #: 200011
 Iowa Certification #: 368
 Kansas Certification #: E-10167
 Louisiana Certification #: 03086
 Louisiana Certification #: LA080009
 Maine Certification #: 2007029
 Maryland Certification #: 322
 Michigan DEQ Certification #: 9909
 Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace
 Montana Certification #: MT CERT0092
 Nevada Certification #: MN_00064
 Nebraska Certification #: Pace
 New Jersey Certification #: MN-002
 New Mexico Certification #: Pace
 New York Certification #: 11647
 North Carolina Certification #: 530
 North Dakota Certification #: R-036
 North Dakota Certification #: R-036A
 Ohio VAP Certification #: CL101
 Oklahoma Certification #: D9921
 Oklahoma Certification #: 9507
 Oregon Certification #: MN200001
 Pennsylvania Certification #: 68-00563
 Puerto Rico Certification
 Tennessee Certification #: 02818
 Texas Certification #: T104704192
 Washington Certification #: C754
 Wisconsin Certification #: 999407970

Montana Certification IDs

602 South 25th Street, Billings, MT 59101
 EPA Region 8 Certification #: 8TMS-Q
 Idaho Certification #: MT00012

Montana Certification #: MT CERT0040
 NVLAP Certification #: 101292-0
 Minnesota Dept of Health Certification #: 030-999-442

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
 A2LA Certification #: 2456.01
 Arkansas Certification #: 05-008-0
 Illinois Certification #: 001191
 Iowa Certification #: 118
 Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055
 Nevada Certification #: KS000212008A
 Oklahoma Certification #: 9205/9935
 Texas Certification #: T104704407-08-TX
 Utah Certification #: 9135995665

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SAMPLE SUMMARY

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6099946001	DR-4-SW	Water	05/26/11 13:45	06/01/11 08:50
6099946002	DR-1	Water	05/25/11 15:30	06/01/11 08:50
6099946003	DR-2	Water	05/25/11 17:15	06/01/11 08:50
6099946004	DR-3	Water	05/25/11 16:15	06/01/11 08:50
6099946005	DR-4	Water	05/25/11 16:31	06/01/11 08:50
6099946006	DR-5	Water	05/25/11 16:53	06/01/11 08:50
6099946007	DR-6	Water	05/26/11 14:55	06/01/11 08:50
6099946008	DR-7	Water	05/26/11 14:37	06/01/11 08:50
6099946009	DR-8	Water	05/25/11 16:23	06/01/11 08:50
6099946010	DR-G	Water	05/26/11 13:20	06/01/11 08:50
6099946011	FB	Water	05/26/11 15:20	06/01/11 08:50

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SAMPLE ANALYTE COUNT

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
6099946001	DR-4-SW	EPA 200.8	RJS	22	PASI-M
		EPA 200.8	TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
		Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K
		SM 2540C	LAJ	1	PASI-K
		SM 2540D	LAJ	1	PASI-K
		EPA 300.0	JML	1	PASI-K
6099946002	DR-1	SM 4500-CN-E	JPF	1	PASI-K
		EPA 200.8	RJS	22	PASI-M
		EPA 200.8	TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
		Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K
		SM 2540C	LAJ	1	PASI-K
		SM 2540D	LAJ	1	PASI-K
6099946003	DR-2	EPA 300.0	JML	1	PASI-K
		SM 4500-CN-E	JPF	1	PASI-K
		EPA 200.8	RJS	22	PASI-M
		EPA 200.8	TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
		Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K
		SM 2540C	LAJ	1	PASI-K
6099946004	DR-3	SM 2540D	LAJ	1	PASI-K
		EPA 300.0	JML	1	PASI-K
		SM 4500-CN-E	JPF	1	PASI-K
		EPA 200.8	RJS	22	PASI-M
		EPA 200.8	CJS, TL1	21	PASI-M

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SAMPLE ANALYTE COUNT

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
6099946005	DR-4	SM 2510B	SR1	1	
		Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K
		SM 2540C	LAJ	1	PASI-K
		SM 2540D	LAJ	1	PASI-K
		EPA 300.0	JML	1	PASI-K
		SM 4500-CN-E	JPF	1	PASI-K
		EPA 200.8	RJS	22	PASI-M
		EPA 200.8	CJS, TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
		Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K
6099946006	DR-5	SM 2540C	LAJ	1	PASI-K
		SM 2540D	LAJ	1	PASI-K
		EPA 300.0	JML	1	PASI-K
		SM 4500-CN-E	JPF	1	PASI-K
		EPA 200.8	RJS	22	PASI-M
		EPA 200.8	CJS, TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
		Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K
		SM 2540C	LAJ	1	PASI-K
		SM 2540D	LAJ	1	PASI-K
6099946007	DR-6	EPA 300.0	JML	1	PASI-K
		SM 4500-CN-E	JPF	1	PASI-K
		EPA 200.8	RJS	22	PASI-M
		EPA 200.8	CJS, TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
		Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K
		SM 2540C	LAJ	1	PASI-K

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SAMPLE ANALYTE COUNT

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
6099946008	DR-7	SM 2540D	LAJ	1	PASI-K
		EPA 300.0	JML	1	PASI-K
		SM 4500-CN-E	JPF	1	PASI-K
		EPA 200.8	RJS	22	PASI-M
		EPA 200.8	TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
		Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K
6099946009	DR-8	SM 2540C	LAJ	1	PASI-K
		SM 2540D	LAJ	1	PASI-K
		EPA 300.0	JML	1	PASI-K
		SM 4500-CN-E	JPF	1	PASI-K
		EPA 200.8	RJS	22	PASI-M
		EPA 200.8	CJS, TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
		Calculated	SR1	2	
6099946010	DR-G	SM 2320B	KPZ	3	PASI-K
		SM 2540C	LAJ	1	PASI-K
		SM 2540D	LAJ	1	PASI-K
		EPA 300.0	JML	1	PASI-K
		SM 4500-CN-E	JPF	1	PASI-K
		EPA 200.8	RJS	22	PASI-M
		EPA 200.8	TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
6099946011	FB	Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K

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SAMPLE ANALYTE COUNT

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 200.8	TL1	21	PASI-M
		EPA 245.1	TEM	1	PASI-M
		EPA 245.1	TEM	1	PASI-M
		SM 2510B	SR1	1	
		Calculated	SR1	2	
		SM 2320B	KPZ	3	PASI-K
		SM 2540C	LAJ	1	PASI-K
		SM 2540D	LAJ	1	PASI-K
		EPA 300.0	JML	1	PASI-K
		SM 4500-CN-E	JPF	1	PASI-K

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: **EPA 200.8**

Description: 200.8 MET ICPMS

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/26418

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 257929001,6099946004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 987426)
 - Aluminum
- MS (Lab ID: 987428)
 - Magnesium
- MSD (Lab ID: 987427)
 - Aluminum

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: ICPM/26418

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 987428)
 - Calcium

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: EPA 200.8

Description: 200.8 MET ICPMS

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

Analyte Comments:

QC Batch: ICPM/26418

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 987428)
- Zinc

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: **EPA 200.8**

Description: 200.8 MET ICPMS, Dissolved

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/26417

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10158821001,6099946006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 987421)
 - Calcium, Dissolved
 - Magnesium, Dissolved
 - Potassium, Dissolved
 - Sodium, Dissolved
- MS (Lab ID: 987423)
 - Calcium, Dissolved
 - Magnesium, Dissolved
 - Manganese, Dissolved
 - Zinc, Dissolved
- MSD (Lab ID: 987422)
 - Calcium, Dissolved
 - Magnesium, Dissolved
 - Potassium, Dissolved
 - Sodium, Dissolved

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: EPA 245.1

Description: 245.1 Mercury

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MERC/5454

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10158653002,6099946011

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 988867)
- Mercury

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: EPA 245.1

Description: 245.1 Mercury, Dissolved

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for EPA 245.1. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: **SM 2510B**

Description: 2510B Specific Conductance
Client: BP Anderson Engineering Company Inc.
Date: June 14, 2011

General Information:

11 samples were analyzed for SM 2510B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: Calculated

Description: Salinity

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for Calculated. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: **SM 2320B**

Description: 2320B Alkalinity

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WET/29458

R1: RPD value was outside control limits.

- DUP (Lab ID: 826845)
 - Alkalinity, Carbonate (CaCO₃)
 - Alkalinity,Bicarbonate (CaCO₃)
- DUP (Lab ID: 826846)
 - Alkalinity, Carbonate (CaCO₃)
 - Alkalinity,Bicarbonate (CaCO₃)

Additional Comments:

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: SM 2540C

Description: 2540C Total Dissolved Solids

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for SM 2540C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: **SM 2540D**

Description: 2540D Total Suspended Solids

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WET/2935

R1: RPD value was outside control limits.

- DUP (Lab ID: 823416)
- Total Suspended Solids

Additional Comments:

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: **EPA 300.0**

Description: 300.0 IC Anions 28 Days

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

Method: SM 4500-CN-E

Description: 4500CNE Cyanide, Total

Client: BP Anderson Engineering Company Inc.

Date: June 14, 2011

General Information:

11 samples were analyzed for SM 4500-CN-E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WETA/16591

R1: RPD value was outside control limits.

- DUP (Lab ID: 826796)
- Cyanide

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-4-SW	Lab ID: 6099946001	Collected: 05/26/11 13:45	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	445 ug/L		4.0	1	06/03/11 14:56	06/08/11 07:19	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:19	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:19	7440-38-2	
Barium	52.7 ug/L		0.30	1	06/03/11 14:56	06/08/11 07:19	7440-39-3	
Beryllium	ND ug/L		0.20	1	06/03/11 14:56	06/08/11 07:19	7440-41-7	
Cadmium	0.38 ug/L		0.080	1	06/03/11 14:56	06/08/11 07:19	7440-43-9	
Calcium	34600 ug/L		100	5	06/03/11 14:56	06/07/11 10:16	7440-70-2	
Chromium	0.59 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:19	7440-47-3	
Copper	2.1 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:19	7440-50-8	
Iron	365 ug/L		50.0	1	06/03/11 14:56	06/08/11 07:19	7439-89-6	
Lead	0.68 ug/L		0.10	1	06/03/11 14:56	06/08/11 07:19	7439-92-1	
Magnesium	4200 ug/L		5.0	1	06/03/11 14:56	06/08/11 07:19	7439-95-4	
Manganese	44.2 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:19	7439-96-5	
Nickel	0.66 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:19	7440-02-0	
Potassium	676 ug/L		20.0	1	06/03/11 14:56	06/08/11 07:19	7440-09-7	
Selenium	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:19	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:19	7440-22-4	
Sodium	1650 ug/L		50.0	1	06/03/11 14:56	06/08/11 07:19	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 07:19	7440-28-0	
Total Hardness by 2340B	104000 ug/L		355	5	06/03/11 14:56	06/07/11 10:16		
Vanadium	0.86 ug/L		0.10	1	06/03/11 14:56	06/08/11 07:19	7440-62-2	
Zinc	67.9 ug/L		5.0	1	06/03/11 14:56	06/08/11 07:19	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	31.4 ug/L		4.0	1	06/03/11 15:51	06/04/11 21:24	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:24	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:24	7440-38-2	
Barium, Dissolved	51.1 ug/L		0.30	1	06/03/11 15:51	06/04/11 21:24	7440-39-3	
Beryllium, Dissolved	ND ug/L		0.20	1	06/03/11 15:51	06/04/11 21:24	7440-41-7	
Cadmium, Dissolved	0.32 ug/L		0.080	1	06/03/11 15:51	06/04/11 21:24	7440-43-9	
Calcium, Dissolved	28300 ug/L		100	5	06/03/11 15:51	06/04/11 21:27	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:24	7440-47-3	
Copper, Dissolved	2.0 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:24	7440-50-8	
Iron, Dissolved	51.2 ug/L		50.0	1	06/03/11 15:51	06/04/11 21:24	7439-89-6	
Lead, Dissolved	0.13 ug/L		0.10	1	06/03/11 15:51	06/04/11 21:24	7439-92-1	
Magnesium, Dissolved	4090 ug/L		5.0	1	06/03/11 15:51	06/04/11 21:24	7439-95-4	
Manganese, Dissolved	35.2 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:24	7439-96-5	
Nickel, Dissolved	0.69 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:24	7440-02-0	
Potassium, Dissolved	591 ug/L		20.0	1	06/03/11 15:51	06/04/11 21:24	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:24	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:24	7440-22-4	
Sodium, Dissolved	1760 ug/L		50.0	1	06/03/11 15:51	06/04/11 21:24	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 21:24	7440-28-0	
Vanadium, Dissolved	0.17 ug/L		0.10	1	06/03/11 15:51	06/04/11 21:24	7440-62-2	
Zinc, Dissolved	58.4 ug/L		5.0	1	06/03/11 15:51	06/04/11 21:24	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-4-SW	Lab ID: 6099946001	Collected: 05/26/11 13:45	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:24	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 09:18	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	186	umhos/cm	10.0	1		06/10/11 10:41		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	119	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.090	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	66.5	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO3	66.5	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	39.0	mg/L	5.0	1		06/02/11 15:58		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	14.0	mg/L	5.0	1		06/02/11 13:08		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	20.9	mg/L	2.0	2		06/09/11 19:00	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		06/08/11 16:52	57-12-5	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-1	Lab ID: 6099946002	Collected: 05/25/11 15:30	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	397 ug/L		4.0	1	06/03/11 14:56	06/08/11 07:24	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:24	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:24	7440-38-2	
Barium	56.6 ug/L		0.30	1	06/03/11 14:56	06/08/11 07:24	7440-39-3	
Beryllium	ND ug/L		0.20	1	06/03/11 14:56	06/08/11 07:24	7440-41-7	
Cadmium	ND ug/L		0.080	1	06/03/11 14:56	06/08/11 07:24	7440-43-9	
Calcium	27900 ug/L		100	5	06/03/11 14:56	06/07/11 10:26	7440-70-2	
Chromium	0.52 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:24	7440-47-3	
Copper	0.93 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:24	7440-50-8	
Iron	292 ug/L		50.0	1	06/03/11 14:56	06/08/11 07:24	7439-89-6	
Lead	0.41 ug/L		0.10	1	06/03/11 14:56	06/08/11 07:24	7439-92-1	
Magnesium	3920 ug/L		5.0	1	06/03/11 14:56	06/08/11 07:24	7439-95-4	
Manganese	10.3 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:24	7439-96-5	
Nickel	0.58 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:24	7440-02-0	
Potassium	631 ug/L		20.0	1	06/03/11 14:56	06/08/11 07:24	7440-09-7	
Selenium	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:24	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:24	7440-22-4	
Sodium	1580 ug/L		50.0	1	06/03/11 14:56	06/08/11 07:24	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 07:24	7440-28-0	
Total Hardness by 2340B	85900 ug/L		355	5	06/03/11 14:56	06/07/11 10:26		
Vanadium	0.80 ug/L		0.10	1	06/03/11 14:56	06/08/11 07:24	7440-62-2	
Zinc	ND ug/L		5.0	1	06/03/11 14:56	06/08/11 07:24	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	35.8 ug/L		4.0	1	06/03/11 15:51	06/04/11 21:30	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:30	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:30	7440-38-2	
Barium, Dissolved	55.4 ug/L		0.30	1	06/03/11 15:51	06/04/11 21:30	7440-39-3	
Beryllium, Dissolved	ND ug/L		0.20	1	06/03/11 15:51	06/04/11 21:30	7440-41-7	
Cadmium, Dissolved	ND ug/L		0.080	1	06/03/11 15:51	06/04/11 21:30	7440-43-9	
Calcium, Dissolved	24700 ug/L		100	5	06/03/11 15:51	06/04/11 21:34	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:30	7440-47-3	
Copper, Dissolved	0.84 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:30	7440-50-8	
Iron, Dissolved	ND ug/L		50.0	1	06/03/11 15:51	06/04/11 21:30	7439-89-6	
Lead, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 21:30	7439-92-1	
Magnesium, Dissolved	3980 ug/L		5.0	1	06/03/11 15:51	06/04/11 21:30	7439-95-4	
Manganese, Dissolved	5.9 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:30	7439-96-5	
Nickel, Dissolved	1.1 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:30	7440-02-0	
Potassium, Dissolved	581 ug/L		20.0	1	06/03/11 15:51	06/04/11 21:30	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:30	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:30	7440-22-4	
Sodium, Dissolved	1810 ug/L		50.0	1	06/03/11 15:51	06/04/11 21:30	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 21:30	7440-28-0	
Vanadium, Dissolved	0.22 ug/L		0.10	1	06/03/11 15:51	06/04/11 21:30	7440-62-2	
Zinc, Dissolved	ND ug/L		5.0	1	06/03/11 15:51	06/04/11 21:30	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-1	Lab ID: 6099946002	Collected: 05/25/11 15:30	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:26	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 09:20	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	158	umhos/cm	10.0	1		06/10/11 10:55		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	101	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.078	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	79.8	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO3	79.8	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	97.0	mg/L	5.0	1		06/01/11 17:06		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	14.0	mg/L	5.0	1		06/01/11 16:46		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	11.5	mg/L	2.0	2		06/09/11 19:15	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		06/08/11 16:43	57-12-5	

ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-2	Lab ID: 6099946003	Collected: 05/25/11 17:15	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	407 ug/L		4.0	1	06/03/11 14:56	06/08/11 08:21	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:21	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:21	7440-38-2	
Barium	55.1 ug/L		0.30	1	06/03/11 14:56	06/08/11 08:21	7440-39-3	
Beryllium	ND ug/L		0.20	1	06/03/11 14:56	06/08/11 08:21	7440-41-7	
Cadmium	ND ug/L		0.080	1	06/03/11 14:56	06/08/11 08:21	7440-43-9	
Calcium	30600 ug/L		100	5	06/03/11 14:56	06/07/11 10:36	7440-70-2	
Chromium	0.55 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:21	7440-47-3	
Copper	1.1 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:21	7440-50-8	
Iron	298 ug/L		50.0	1	06/03/11 14:56	06/08/11 08:21	7439-89-6	
Lead	0.43 ug/L		0.10	1	06/03/11 14:56	06/08/11 08:21	7439-92-1	
Magnesium	3960 ug/L		5.0	1	06/03/11 14:56	06/08/11 08:21	7439-95-4	
Manganese	23.8 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:21	7439-96-5	
Nickel	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:21	7440-02-0	
Potassium	667 ug/L		20.0	1	06/03/11 14:56	06/08/11 08:21	7440-09-7	
Selenium	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:21	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:21	7440-22-4	
Sodium	1640 ug/L		50.0	1	06/03/11 14:56	06/08/11 08:21	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 08:21	7440-28-0	
Total Hardness by 2340B	92900 ug/L		355	5	06/03/11 14:56	06/07/11 10:36		
Vanadium	0.82 ug/L		0.10	1	06/03/11 14:56	06/08/11 08:21	7440-62-2	
Zinc	6.3 ug/L		5.0	1	06/03/11 14:56	06/08/11 08:21	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	34.0 ug/L		4.0	1	06/03/11 15:51	06/04/11 21:37	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:37	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:37	7440-38-2	
Barium, Dissolved	54.7 ug/L		0.30	1	06/03/11 15:51	06/04/11 21:37	7440-39-3	
Beryllium, Dissolved	ND ug/L		0.20	1	06/03/11 15:51	06/04/11 21:37	7440-41-7	
Cadmium, Dissolved	ND ug/L		0.080	1	06/03/11 15:51	06/04/11 21:37	7440-43-9	
Calcium, Dissolved	26500 ug/L		100	5	06/03/11 15:51	06/04/11 21:40	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:37	7440-47-3	
Copper, Dissolved	0.90 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:37	7440-50-8	
Iron, Dissolved	ND ug/L		50.0	1	06/03/11 15:51	06/04/11 21:37	7439-89-6	
Lead, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 21:37	7439-92-1	
Magnesium, Dissolved	4060 ug/L		5.0	1	06/03/11 15:51	06/04/11 21:37	7439-95-4	
Manganese, Dissolved	18.8 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:37	7439-96-5	
Nickel, Dissolved	1.1 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:37	7440-02-0	
Potassium, Dissolved	595 ug/L		20.0	1	06/03/11 15:51	06/04/11 21:37	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:37	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:37	7440-22-4	
Sodium, Dissolved	1750 ug/L		50.0	1	06/03/11 15:51	06/04/11 21:37	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 21:37	7440-28-0	
Vanadium, Dissolved	0.21 ug/L		0.10	1	06/03/11 15:51	06/04/11 21:37	7440-62-2	
Zinc, Dissolved	ND ug/L		5.0	1	06/03/11 15:51	06/04/11 21:37	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-2	Lab ID: 6099946003	Collected: 05/25/11 17:15	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:29	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 09:22	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	166	umhos/cm	10.0	1		06/10/11 10:58		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	106	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.081	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	68.4	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO3	68.4	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	466	mg/L	5.0	1		06/01/11 17:06		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	6.0	mg/L	5.0	1		06/01/11 16:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	16.3	mg/L	2.0	2		06/09/11 20:00	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		06/08/11 16:44	57-12-5	

ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-3	Lab ID: 6099946004	Collected: 05/25/11 16:15	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	366 ug/L		4.0	1	06/03/11 14:56	06/08/11 08:26	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:26	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:26	7440-38-2	
Barium	20.1 ug/L		0.30	1	06/03/11 14:56	06/08/11 08:26	7440-39-3	
Beryllium	0.53 ug/L		0.20	1	06/03/11 14:56	06/08/11 08:26	7440-41-7	
Cadmium	44.0 ug/L		0.080	1	06/03/11 14:56	06/08/11 08:26	7440-43-9	
Calcium	254000 ug/L		1000	50	06/03/11 14:56	06/08/11 08:35	7440-70-2	M6
Chromium	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:26	7440-47-3	
Copper	94.0 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:26	7440-50-8	
Iron	3140 ug/L		50.0	1	06/03/11 14:56	06/08/11 08:26	7439-89-6	
Lead	2.3 ug/L		0.10	1	06/03/11 14:56	06/08/11 08:26	7439-92-1	
Magnesium	21500 ug/L		5.0	1	06/03/11 14:56	06/08/11 08:26	7439-95-4	M1
Manganese	2740 ug/L		25.0	50	06/03/11 14:56	06/08/11 08:35	7439-96-5	M6
Nickel	6.8 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:26	7440-02-0	
Potassium	1590 ug/L		20.0	1	06/03/11 14:56	06/08/11 08:26	7440-09-7	
Selenium	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:26	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:26	7440-22-4	
Sodium	9880 ug/L		50.0	1	06/03/11 14:56	06/08/11 08:26	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 08:26	7440-28-0	
Total Hardness by 2340B	723000 ug/L		3550	50	06/03/11 14:56	06/08/11 08:35		
Vanadium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 08:26	7440-62-2	
Zinc	7830 ug/L		250	50	06/03/11 14:56	06/08/11 08:35	7440-66-6	M6
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	56.2 ug/L		4.0	1	06/03/11 15:51	06/04/11 21:54	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:54	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:54	7440-38-2	
Barium, Dissolved	20.7 ug/L		0.30	1	06/03/11 15:51	06/04/11 21:54	7440-39-3	
Beryllium, Dissolved	0.39 ug/L		0.20	1	06/03/11 15:51	06/04/11 21:54	7440-41-7	
Cadmium, Dissolved	43.7 ug/L		0.080	1	06/03/11 15:51	06/04/11 21:54	7440-43-9	
Calcium, Dissolved	244000 ug/L		400	20	06/03/11 15:51	06/05/11 13:44	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:54	7440-47-3	
Copper, Dissolved	26.7 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:54	7440-50-8	
Iron, Dissolved	497 ug/L		50.0	1	06/03/11 15:51	06/04/11 21:54	7439-89-6	
Lead, Dissolved	0.11 ug/L		0.10	1	06/03/11 15:51	06/04/11 21:54	7439-92-1	
Magnesium, Dissolved	21700 ug/L		5.0	1	06/03/11 15:51	06/04/11 21:54	7439-95-4	
Manganese, Dissolved	2760 ug/L		10.0	20	06/03/11 15:51	06/05/11 13:44	7439-96-5	
Nickel, Dissolved	7.4 ug/L		0.50	1	06/03/11 15:51	06/04/11 21:54	7440-02-0	
Potassium, Dissolved	1620 ug/L		20.0	1	06/03/11 15:51	06/04/11 21:54	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:54	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 21:54	7440-22-4	
Sodium, Dissolved	9750 ug/L		50.0	1	06/03/11 15:51	06/04/11 21:54	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 21:54	7440-28-0	
Vanadium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 21:54	7440-62-2	
Zinc, Dissolved	7830 ug/L		100	20	06/03/11 15:51	06/05/11 13:44	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-3	Lab ID: 6099946004	Collected: 05/25/11 16:15	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:31	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 09:24	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	1120	umhos/cm	10.0	1		06/10/11 10:59		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	716	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.55	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	95.0	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO3	95.0	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	988	mg/L	5.0	1		06/01/11 17:07		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	14.0	mg/L	5.0	1		06/01/11 16:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	577	mg/L	50.0	50		06/09/11 20:16	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	0.011	mg/L	0.0050	1		06/08/11 16:46	57-12-5	

ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-4	Lab ID: 6099946005	Collected: 05/25/11 16:31	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	213 ug/L		4.0	1	06/03/11 14:56	06/08/11 07:33	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:33	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:33	7440-38-2	
Barium	20.6 ug/L		0.30	1	06/03/11 14:56	06/08/11 07:33	7440-39-3	
Beryllium	0.32 ug/L		0.20	1	06/03/11 14:56	06/08/11 07:33	7440-41-7	
Cadmium	38.8 ug/L		0.080	1	06/03/11 14:56	06/08/11 07:33	7440-43-9	
Calcium	238000 ug/L		400	20	06/03/11 14:56	06/08/11 07:38	7440-70-2	
Chromium	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:33	7440-47-3	
Copper	59.8 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:33	7440-50-8	
Iron	1820 ug/L		50.0	1	06/03/11 14:56	06/08/11 07:33	7439-89-6	
Lead	1.2 ug/L		0.10	1	06/03/11 14:56	06/08/11 07:33	7439-92-1	
Magnesium	21200 ug/L		5.0	1	06/03/11 14:56	06/08/11 07:33	7439-95-4	
Manganese	2410 ug/L		10.0	20	06/03/11 14:56	06/08/11 07:38	7439-96-5	
Nickel	7.3 ug/L		0.50	1	06/03/11 14:56	06/08/11 07:33	7440-02-0	
Potassium	1590 ug/L		20.0	1	06/03/11 14:56	06/08/11 07:33	7440-09-7	
Selenium	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:33	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 07:33	7440-22-4	
Sodium	9580 ug/L		50.0	1	06/03/11 14:56	06/08/11 07:33	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 07:33	7440-28-0	
Total Hardness by 2340B	682000 ug/L		1420	20	06/03/11 14:56	06/08/11 07:38		
Vanadium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 07:33	7440-62-2	
Zinc	6520 ug/L		100	20	06/03/11 14:56	06/08/11 07:38	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	4.8 ug/L		4.0	1	06/03/11 15:51	06/04/11 22:01	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:01	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:01	7440-38-2	
Barium, Dissolved	20.1 ug/L		0.30	1	06/03/11 15:51	06/04/11 22:01	7440-39-3	
Beryllium, Dissolved	ND ug/L		0.20	1	06/03/11 15:51	06/04/11 22:01	7440-41-7	
Cadmium, Dissolved	36.5 ug/L		0.080	1	06/03/11 15:51	06/04/11 22:01	7440-43-9	
Calcium, Dissolved	239000 ug/L		400	20	06/03/11 15:51	06/05/11 13:47	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:01	7440-47-3	
Copper, Dissolved	7.1 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:01	7440-50-8	
Iron, Dissolved	ND ug/L		50.0	1	06/03/11 15:51	06/04/11 22:01	7439-89-6	
Lead, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:01	7439-92-1	
Magnesium, Dissolved	21200 ug/L		5.0	1	06/03/11 15:51	06/04/11 22:01	7439-95-4	
Manganese, Dissolved	2480 ug/L		10.0	20	06/03/11 15:51	06/05/11 13:47	7439-96-5	
Nickel, Dissolved	7.0 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:01	7440-02-0	
Potassium, Dissolved	1620 ug/L		20.0	1	06/03/11 15:51	06/04/11 22:01	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:01	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:01	7440-22-4	
Sodium, Dissolved	9660 ug/L		50.0	1	06/03/11 15:51	06/04/11 22:01	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:01	7440-28-0	
Vanadium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:01	7440-62-2	
Zinc, Dissolved	6010 ug/L		100	20	06/03/11 15:51	06/05/11 13:47	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-4	Lab ID: 6099946005	Collected: 05/25/11 16:31	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:33	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 09:30	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	1210	umhos/cm	10.0	1		06/10/11 11:06		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	773	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.60	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	87.4	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO3	87.4	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	1020	mg/L	5.0	1		06/01/11 17:07		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	11.0	mg/L	5.0	1		06/01/11 16:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	576	mg/L	50.0	50		06/09/11 20:31	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		06/08/11 16:47	57-12-5	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-5	Lab ID: 6099946006	Collected: 05/25/11 16:53	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	96.5 ug/L		4.0	1	06/03/11 14:56	06/08/11 08:40	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:40	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:40	7440-38-2	
Barium	19.9 ug/L		0.30	1	06/03/11 14:56	06/08/11 08:40	7440-39-3	
Beryllium	0.20 ug/L		0.20	1	06/03/11 14:56	06/08/11 08:40	7440-41-7	
Cadmium	30.6 ug/L		0.080	1	06/03/11 14:56	06/08/11 08:40	7440-43-9	
Calcium	252000 ug/L		400	20	06/03/11 14:56	06/08/11 08:45	7440-70-2	
Chromium	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:40	7440-47-3	
Copper	23.0 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:40	7440-50-8	
Iron	1060 ug/L		50.0	1	06/03/11 14:56	06/08/11 08:40	7439-89-6	
Lead	0.71 ug/L		0.10	1	06/03/11 14:56	06/08/11 08:40	7439-92-1	
Magnesium	22400 ug/L		5.0	1	06/03/11 14:56	06/08/11 08:40	7439-95-4	
Manganese	2240 ug/L		2.5	5	06/03/11 14:56	06/07/11 11:20	7439-96-5	
Nickel	5.5 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:40	7440-02-0	
Potassium	1890 ug/L		20.0	1	06/03/11 14:56	06/08/11 08:40	7440-09-7	
Selenium	0.52 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:40	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:40	7440-22-4	
Sodium	10400 ug/L		50.0	1	06/03/11 14:56	06/08/11 08:40	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 08:40	7440-28-0	
Total Hardness by 2340B	722000 ug/L		1420	20	06/03/11 14:56	06/08/11 08:45		
Vanadium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 08:40	7440-62-2	
Zinc	5130 ug/L		100	20	06/03/11 14:56	06/08/11 08:45	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	ND ug/L		4.0	1	06/03/11 15:51	06/04/11 22:07	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:07	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:07	7440-38-2	
Barium, Dissolved	20.3 ug/L		0.30	1	06/03/11 15:51	06/04/11 22:07	7440-39-3	
Beryllium, Dissolved	ND ug/L		0.20	1	06/03/11 15:51	06/04/11 22:07	7440-41-7	
Cadmium, Dissolved	29.2 ug/L		0.080	1	06/03/11 15:51	06/04/11 22:07	7440-43-9	
Calcium, Dissolved	251000 ug/L		400	20	06/03/11 15:51	06/05/11 13:50	7440-70-2	M1
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:07	7440-47-3	
Copper, Dissolved	3.8 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:07	7440-50-8	
Iron, Dissolved	ND ug/L		50.0	1	06/03/11 15:51	06/04/11 22:07	7439-89-6	
Lead, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:07	7439-92-1	
Magnesium, Dissolved	23500 ug/L		25.0	5	06/03/11 15:51	06/04/11 22:11	7439-95-4	M1
Manganese, Dissolved	2230 ug/L		10.0	20	06/03/11 15:51	06/05/11 13:50	7439-96-5	M1
Nickel, Dissolved	6.2 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:07	7440-02-0	
Potassium, Dissolved	1920 ug/L		20.0	1	06/03/11 15:51	06/04/11 22:07	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:07	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:07	7440-22-4	
Sodium, Dissolved	10200 ug/L		50.0	1	06/03/11 15:51	06/04/11 22:07	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:07	7440-28-0	
Vanadium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:07	7440-62-2	
Zinc, Dissolved	5040 ug/L		100	20	06/03/11 15:51	06/05/11 13:50	7440-66-6	M1

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-5	Lab ID: 6099946006	Collected: 05/25/11 16:53	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:35	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 09:32	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	1150	umhos/cm	10.0	1		06/10/11 11:07		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	738	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.57	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	72.2	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO3	72.2	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	995	mg/L	5.0	1		06/01/11 17:07		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	ND	mg/L	5.0	1		06/01/11 16:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	558	mg/L	50.0	50		06/09/11 20:46	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		06/08/11 16:51	57-12-5	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-6	Lab ID: 6099946007	Collected: 05/26/11 14:55	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	35.5 ug/L		4.0	1	06/03/11 14:56	06/08/11 08:50	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:50	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:50	7440-38-2	
Barium	20.8 ug/L		0.30	1	06/03/11 14:56	06/08/11 08:50	7440-39-3	
Beryllium	ND ug/L		0.20	1	06/03/11 14:56	06/08/11 08:50	7440-41-7	
Cadmium	24.0 ug/L		0.080	1	06/03/11 14:56	06/08/11 08:50	7440-43-9	
Calcium	263000 ug/L		400	20	06/03/11 14:56	06/08/11 08:54	7440-70-2	
Chromium	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:50	7440-47-3	
Copper	8.5 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:50	7440-50-8	
Iron	536 ug/L		50.0	1	06/03/11 14:56	06/08/11 08:50	7439-89-6	
Lead	0.44 ug/L		0.10	1	06/03/11 14:56	06/08/11 08:50	7439-92-1	
Magnesium	24900 ug/L		25.0	5	06/03/11 14:56	06/07/11 11:30	7439-95-4	
Manganese	2000 ug/L		2.5	5	06/03/11 14:56	06/07/11 11:30	7439-96-5	
Nickel	4.9 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:50	7440-02-0	
Potassium	2770 ug/L		20.0	1	06/03/11 14:56	06/08/11 08:50	7440-09-7	
Selenium	0.53 ug/L		0.50	1	06/03/11 14:56	06/08/11 08:50	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/08/11 08:50	7440-22-4	
Sodium	13600 ug/L		50.0	1	06/03/11 14:56	06/08/11 08:50	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 08:50	7440-28-0	
Total Hardness by 2340B	759000 ug/L		1420	20	06/03/11 14:56	06/08/11 08:54		
Vanadium	ND ug/L		0.10	1	06/03/11 14:56	06/08/11 08:50	7440-62-2	
Zinc	4070 ug/L		100	20	06/03/11 14:56	06/08/11 08:54	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	ND ug/L		4.0	1	06/03/11 15:51	06/04/11 22:14	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:14	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:14	7440-38-2	
Barium, Dissolved	20.8 ug/L		0.30	1	06/03/11 15:51	06/04/11 22:14	7440-39-3	
Beryllium, Dissolved	ND ug/L		0.20	1	06/03/11 15:51	06/04/11 22:14	7440-41-7	
Cadmium, Dissolved	23.9 ug/L		0.080	1	06/03/11 15:51	06/04/11 22:14	7440-43-9	
Calcium, Dissolved	269000 ug/L		400	20	06/03/11 15:51	06/05/11 13:54	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:14	7440-47-3	
Copper, Dissolved	2.4 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:14	7440-50-8	
Iron, Dissolved	ND ug/L		50.0	1	06/03/11 15:51	06/04/11 22:14	7439-89-6	
Lead, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:14	7439-92-1	
Magnesium, Dissolved	25700 ug/L		25.0	5	06/03/11 15:51	06/04/11 22:17	7439-95-4	
Manganese, Dissolved	1950 ug/L		2.5	5	06/03/11 15:51	06/04/11 22:17	7439-96-5	
Nickel, Dissolved	5.4 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:14	7440-02-0	
Potassium, Dissolved	2680 ug/L		20.0	1	06/03/11 15:51	06/04/11 22:14	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:14	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:14	7440-22-4	
Sodium, Dissolved	12700 ug/L		50.0	1	06/03/11 15:51	06/04/11 22:14	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:14	7440-28-0	
Vanadium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:14	7440-62-2	
Zinc, Dissolved	4290 ug/L		100	20	06/03/11 15:51	06/05/11 13:54	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-6	Lab ID: 6099946007	Collected: 05/26/11 14:55	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:37	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 11:43	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	1330	umhos/cm	10.0	1		06/10/11 11:10		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	849	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.66	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	144	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO3	144	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	1000	mg/L	5.0	1		06/02/11 15:58		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	ND	mg/L	5.0	1		06/02/11 13:08		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	584	mg/L	50.0	50		06/09/11 21:01	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		06/08/11 16:52	57-12-5	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-7	Lab ID: 6099946008	Collected: 05/26/11 14:37	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	463 ug/L		4.0	1	06/03/11 14:56	06/07/11 11:45	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 11:45	7440-36-0	
Arsenic	0.55 ug/L		0.50	1	06/03/11 14:56	06/07/11 11:45	7440-38-2	
Barium	54.5 ug/L		0.30	1	06/03/11 14:56	06/07/11 11:45	7440-39-3	
Beryllium	ND ug/L		0.20	1	06/03/11 14:56	06/07/11 11:45	7440-41-7	
Cadmium	0.43 ug/L		0.080	1	06/03/11 14:56	06/07/11 11:45	7440-43-9	
Calcium	33500 ug/L		100	5	06/03/11 14:56	06/07/11 11:50	7440-70-2	
Chromium	0.94 ug/L		0.50	1	06/03/11 14:56	06/07/11 11:45	7440-47-3	
Copper	1.3 ug/L		0.50	1	06/03/11 14:56	06/07/11 11:45	7440-50-8	
Iron	374 ug/L		50.0	1	06/03/11 14:56	06/07/11 11:45	7439-89-6	
Lead	0.48 ug/L		0.10	1	06/03/11 14:56	06/07/11 11:45	7439-92-1	
Magnesium	4200 ug/L		5.0	1	06/03/11 14:56	06/07/11 11:45	7439-95-4	
Manganese	56.1 ug/L		0.50	1	06/03/11 14:56	06/07/11 11:45	7439-96-5	
Nickel	0.89 ug/L		0.50	1	06/03/11 14:56	06/07/11 11:45	7440-02-0	
Potassium	737 ug/L		20.0	1	06/03/11 14:56	06/07/11 11:45	7440-09-7	
Selenium	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 11:45	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 11:45	7440-22-4	
Sodium	1990 ug/L		50.0	1	06/03/11 14:56	06/07/11 11:45	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/07/11 11:45	7440-28-0	
Total Hardness by 2340B	101000 ug/L		355	5	06/03/11 14:56	06/07/11 11:50		
Vanadium	0.83 ug/L		0.10	1	06/03/11 14:56	06/07/11 11:45	7440-62-2	
Zinc	72.5 ug/L		5.0	1	06/03/11 14:56	06/07/11 11:45	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	30.2 ug/L		4.0	1	06/03/11 15:51	06/04/11 22:21	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:21	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:21	7440-38-2	
Barium, Dissolved	48.9 ug/L		0.30	1	06/03/11 15:51	06/04/11 22:21	7440-39-3	
Beryllium, Dissolved	ND ug/L		0.20	1	06/03/11 15:51	06/04/11 22:21	7440-41-7	
Cadmium, Dissolved	0.34 ug/L		0.080	1	06/03/11 15:51	06/04/11 22:21	7440-43-9	
Calcium, Dissolved	27200 ug/L		100	5	06/03/11 15:51	06/04/11 22:38	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:21	7440-47-3	
Copper, Dissolved	1.2 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:21	7440-50-8	
Iron, Dissolved	ND ug/L		50.0	1	06/03/11 15:51	06/04/11 22:21	7439-89-6	
Lead, Dissolved	0.16 ug/L		0.10	1	06/03/11 15:51	06/04/11 22:21	7439-92-1	
Magnesium, Dissolved	4190 ug/L		5.0	1	06/03/11 15:51	06/04/11 22:21	7439-95-4	
Manganese, Dissolved	46.8 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:21	7439-96-5	
Nickel, Dissolved	0.65 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:21	7440-02-0	
Potassium, Dissolved	652 ug/L		20.0	1	06/03/11 15:51	06/04/11 22:21	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:21	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:21	7440-22-4	
Sodium, Dissolved	1900 ug/L		50.0	1	06/03/11 15:51	06/04/11 22:21	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:21	7440-28-0	
Vanadium, Dissolved	0.20 ug/L		0.10	1	06/03/11 15:51	06/04/11 22:21	7440-62-2	
Zinc, Dissolved	59.5 ug/L		5.0	1	06/03/11 15:51	06/04/11 22:21	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-7	Lab ID: 6099946008	Collected: 05/26/11 14:37	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:43	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 09:36	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	181	umhos/cm	10.0	1		06/10/11 11:13		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	116	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.088	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO ₃)	135	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO ₃)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO ₃	135	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	110	mg/L	5.0	1		06/02/11 15:58		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	ND	mg/L	5.0	1		06/02/11 13:08		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	27.6	mg/L	2.0	2		06/09/11 21:32	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		06/08/11 16:55	57-12-5	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-8	Lab ID: 6099946009	Collected: 05/25/11 16:23	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	375 ug/L		4.0	1	06/03/11 14:56	06/07/11 11:55	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 11:55	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 11:55	7440-38-2	
Barium	20.3 ug/L		0.30	1	06/03/11 14:56	06/07/11 11:55	7440-39-3	
Beryllium	0.66 ug/L		0.20	1	06/03/11 14:56	06/07/11 11:55	7440-41-7	
Cadmium	43.5 ug/L		0.080	1	06/03/11 14:56	06/07/11 11:55	7440-43-9	
Calcium	238000 ug/L		1000	50	06/03/11 14:56	06/09/11 01:43	7440-70-2	
Chromium	1.0 ug/L		0.50	1	06/03/11 14:56	06/07/11 11:55	7440-47-3	
Copper	94.1 ug/L		0.50	1	06/03/11 14:56	06/07/11 11:55	7440-50-8	
Iron	3100 ug/L		50.0	1	06/03/11 14:56	06/07/11 11:55	7439-89-6	
Lead	2.7 ug/L		0.10	1	06/03/11 14:56	06/07/11 11:55	7439-92-1	
Magnesium	20200 ug/L		5.0	1	06/03/11 14:56	06/07/11 11:55	7439-95-4	
Manganese	2680 ug/L		25.0	50	06/03/11 14:56	06/09/11 01:43	7439-96-5	
Nickel	6.7 ug/L		0.50	1	06/03/11 14:56	06/07/11 11:55	7440-02-0	
Potassium	1540 ug/L		20.0	1	06/03/11 14:56	06/07/11 11:55	7440-09-7	
Selenium	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 11:55	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 11:55	7440-22-4	
Sodium	10200 ug/L		50.0	1	06/03/11 14:56	06/07/11 11:55	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/07/11 11:55	7440-28-0	
Total Hardness by 2340B	679000 ug/L		3550	50	06/03/11 14:56	06/09/11 01:43		
Vanadium	ND ug/L		0.10	1	06/03/11 14:56	06/07/11 11:55	7440-62-2	
Zinc	7760 ug/L		250	50	06/03/11 14:56	06/09/11 01:43	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	42.6 ug/L		4.0	1	06/03/11 15:51	06/04/11 22:41	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:41	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:41	7440-38-2	
Barium, Dissolved	21.0 ug/L		0.30	1	06/03/11 15:51	06/04/11 22:41	7440-39-3	
Beryllium, Dissolved	0.38 ug/L		0.20	1	06/03/11 15:51	06/04/11 22:41	7440-41-7	
Cadmium, Dissolved	43.6 ug/L		0.080	1	06/03/11 15:51	06/04/11 22:41	7440-43-9	
Calcium, Dissolved	244000 ug/L		400	20	06/03/11 15:51	06/05/11 13:57	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:41	7440-47-3	
Copper, Dissolved	22.2 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:41	7440-50-8	
Iron, Dissolved	400 ug/L		50.0	1	06/03/11 15:51	06/04/11 22:41	7439-89-6	
Lead, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:41	7439-92-1	
Magnesium, Dissolved	21700 ug/L		5.0	1	06/03/11 15:51	06/04/11 22:41	7439-95-4	
Manganese, Dissolved	2760 ug/L		10.0	20	06/03/11 15:51	06/05/11 13:57	7439-96-5	
Nickel, Dissolved	7.2 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:41	7440-02-0	
Potassium, Dissolved	1630 ug/L		20.0	1	06/03/11 15:51	06/04/11 22:41	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:41	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:41	7440-22-4	
Sodium, Dissolved	9830 ug/L		50.0	1	06/03/11 15:51	06/04/11 22:41	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:41	7440-28-0	
Vanadium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:41	7440-62-2	
Zinc, Dissolved	7750 ug/L		100	20	06/03/11 15:51	06/05/11 13:57	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-8	Lab ID: 6099946009	Collected: 05/25/11 16:23	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:45	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 11:44	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	1140	umhos/cm	10.0	1		06/10/11 11:14		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	731	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.57	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO ₃)	118	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO ₃)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO ₃	118	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	1030	mg/L	5.0	1		06/01/11 17:07		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	10	mg/L	5.0	1		06/01/11 16:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	571	mg/L	50.0	50		06/09/11 21:47	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		06/08/11 16:51	57-12-5	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-G	Lab ID: 6099946010	Collected: 05/26/11 13:20	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	397 ug/L		4.0	1	06/03/11 14:56	06/07/11 12:05	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:05	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:05	7440-38-2	
Barium	75.2 ug/L		0.30	1	06/03/11 14:56	06/07/11 12:05	7440-39-3	
Beryllium	ND ug/L		0.20	1	06/03/11 14:56	06/07/11 12:05	7440-41-7	
Cadmium	0.25 ug/L		0.080	1	06/03/11 14:56	06/07/11 12:05	7440-43-9	
Calcium	35800 ug/L		100	5	06/03/11 14:56	06/07/11 12:10	7440-70-2	
Chromium	0.76 ug/L		0.50	1	06/03/11 14:56	06/07/11 12:05	7440-47-3	
Copper	1.9 ug/L		0.50	1	06/03/11 14:56	06/07/11 12:05	7440-50-8	
Iron	312 ug/L		50.0	1	06/03/11 14:56	06/07/11 12:05	7439-89-6	
Lead	0.51 ug/L		0.10	1	06/03/11 14:56	06/07/11 12:05	7439-92-1	
Magnesium	3960 ug/L		5.0	1	06/03/11 14:56	06/07/11 12:05	7439-95-4	
Manganese	34.5 ug/L		0.50	1	06/03/11 14:56	06/07/11 12:05	7439-96-5	
Nickel	0.73 ug/L		0.50	1	06/03/11 14:56	06/07/11 12:05	7440-02-0	
Potassium	656 ug/L		20.0	1	06/03/11 14:56	06/07/11 12:05	7440-09-7	
Selenium	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:05	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:05	7440-22-4	
Sodium	1780 ug/L		50.0	1	06/03/11 14:56	06/07/11 12:05	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/07/11 12:05	7440-28-0	
Total Hardness by 2340B	106000 ug/L		355	5	06/03/11 14:56	06/07/11 12:10		
Vanadium	0.93 ug/L		0.10	1	06/03/11 14:56	06/07/11 12:05	7440-62-2	
Zinc	51.2 ug/L		5.0	1	06/03/11 14:56	06/07/11 12:05	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	27.8 ug/L		4.0	1	06/03/11 15:51	06/04/11 22:48	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:48	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:48	7440-38-2	
Barium, Dissolved	75.1 ug/L		0.30	1	06/03/11 15:51	06/04/11 22:48	7440-39-3	
Beryllium, Dissolved	ND ug/L		0.20	1	06/03/11 15:51	06/04/11 22:48	7440-41-7	
Cadmium, Dissolved	0.20 ug/L		0.080	1	06/03/11 15:51	06/04/11 22:48	7440-43-9	
Calcium, Dissolved	30400 ug/L		100	5	06/03/11 15:51	06/04/11 22:51	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:48	7440-47-3	
Copper, Dissolved	1.9 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:48	7440-50-8	
Iron, Dissolved	ND ug/L		50.0	1	06/03/11 15:51	06/04/11 22:48	7439-89-6	
Lead, Dissolved	0.13 ug/L		0.10	1	06/03/11 15:51	06/04/11 22:48	7439-92-1	
Magnesium, Dissolved	4180 ug/L		5.0	1	06/03/11 15:51	06/04/11 22:48	7439-95-4	
Manganese, Dissolved	24.6 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:48	7439-96-5	
Nickel, Dissolved	0.53 ug/L		0.50	1	06/03/11 15:51	06/04/11 22:48	7440-02-0	
Potassium, Dissolved	616 ug/L		20.0	1	06/03/11 15:51	06/04/11 22:48	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:48	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:48	7440-22-4	
Sodium, Dissolved	1790 ug/L		50.0	1	06/03/11 15:51	06/04/11 22:48	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:48	7440-28-0	
Vanadium, Dissolved	0.33 ug/L		0.10	1	06/03/11 15:51	06/04/11 22:48	7440-62-2	
Zinc, Dissolved	39.3 ug/L		5.0	1	06/03/11 15:51	06/04/11 22:48	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: DR-G	Lab ID: 6099946010	Collected: 05/26/11 13:20	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND	ug/L	0.20	1	06/07/11 17:55	06/08/11 13:47	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND	ug/L	0.20	1	06/09/11 16:15	06/10/11 09:40	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	192	umhos/cm	10.0	1		06/10/11 11:26		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	123	mg/L	6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.093	PSU	0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	58.9	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO3	58.9	mg/L	20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	109	mg/L	5.0	1		06/02/11 15:59		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	ND	mg/L	5.0	1		06/02/11 13:09		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	15.2	mg/L	2.0	2		06/09/11 22:02	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND	mg/L	0.0050	1		06/08/11 16:55	57-12-5	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: FB	Lab ID: 6099946011	Collected: 05/26/11 15:20	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: EPA 200.8							
Aluminum	ND ug/L		4.0	1	06/03/11 14:56	06/07/11 12:15	7429-90-5	
Antimony	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:15	7440-36-0	
Arsenic	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:15	7440-38-2	
Barium	ND ug/L		0.30	1	06/03/11 14:56	06/07/11 12:15	7440-39-3	
Beryllium	ND ug/L		0.20	1	06/03/11 14:56	06/07/11 12:15	7440-41-7	
Cadmium	ND ug/L		0.080	1	06/03/11 14:56	06/07/11 12:15	7440-43-9	
Calcium	ND ug/L		20.0	1	06/03/11 14:56	06/07/11 12:15	7440-70-2	
Chromium	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:15	7440-47-3	
Copper	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:15	7440-50-8	
Iron	ND ug/L		50.0	1	06/03/11 14:56	06/07/11 12:15	7439-89-6	
Lead	ND ug/L		0.10	1	06/03/11 14:56	06/07/11 12:15	7439-92-1	
Magnesium	ND ug/L		5.0	1	06/03/11 14:56	06/07/11 12:15	7439-95-4	
Manganese	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:15	7439-96-5	
Nickel	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:15	7440-02-0	
Potassium	ND ug/L		20.0	1	06/03/11 14:56	06/07/11 12:15	7440-09-7	
Selenium	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:15	7782-49-2	
Silver	ND ug/L		0.50	1	06/03/11 14:56	06/07/11 12:15	7440-22-4	
Sodium	ND ug/L		50.0	1	06/03/11 14:56	06/07/11 12:15	7440-23-5	
Thallium	ND ug/L		0.10	1	06/03/11 14:56	06/07/11 12:15	7440-28-0	
Total Hardness by 2340B	ND ug/L		71.0	1	06/03/11 14:56	06/07/11 12:15		
Vanadium	ND ug/L		0.10	1	06/03/11 14:56	06/07/11 12:15	7440-62-2	
Zinc	ND ug/L		5.0	1	06/03/11 14:56	06/07/11 12:15	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA 200.8							
Aluminum, Dissolved	ND ug/L		4.0	1	06/03/11 15:51	06/04/11 22:54	7429-90-5	
Antimony, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:54	7440-36-0	
Arsenic, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:54	7440-38-2	
Barium, Dissolved	ND ug/L		0.30	1	06/03/11 15:51	06/04/11 22:54	7440-39-3	
Beryllium, Dissolved	ND ug/L		0.20	1	06/03/11 15:51	06/04/11 22:54	7440-41-7	
Cadmium, Dissolved	ND ug/L		0.080	1	06/03/11 15:51	06/04/11 22:54	7440-43-9	
Calcium, Dissolved	ND ug/L		20.0	1	06/03/11 15:51	06/04/11 22:54	7440-70-2	
Chromium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:54	7440-47-3	
Copper, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:54	7440-50-8	
Iron, Dissolved	ND ug/L		50.0	1	06/03/11 15:51	06/04/11 22:54	7439-89-6	
Lead, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:54	7439-92-1	
Magnesium, Dissolved	ND ug/L		5.0	1	06/03/11 15:51	06/04/11 22:54	7439-95-4	
Manganese, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:54	7439-96-5	
Nickel, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:54	7440-02-0	
Potassium, Dissolved	32.8 ug/L		20.0	1	06/03/11 15:51	06/04/11 22:54	7440-09-7	
Selenium, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:54	7782-49-2	
Silver, Dissolved	ND ug/L		0.50	1	06/03/11 15:51	06/04/11 22:54	7440-22-4	
Sodium, Dissolved	ND ug/L		50.0	1	06/03/11 15:51	06/04/11 22:54	7440-23-5	
Thallium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:54	7440-28-0	
Vanadium, Dissolved	ND ug/L		0.10	1	06/03/11 15:51	06/04/11 22:54	7440-62-2	
Zinc, Dissolved	ND ug/L		5.0	1	06/03/11 15:51	06/04/11 22:54	7440-66-6	

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ANALYTICAL RESULTS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Sample: FB	Lab ID: 6099946011	Collected: 05/26/11 15:20	Received: 06/01/11 08:50	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
245.1 Mercury	Analytical Method: EPA 245.1							
Mercury	ND ug/L		0.20	1	06/07/11 17:55	06/08/11 13:49	7439-97-6	
245.1 Mercury, Dissolved	Analytical Method: EPA 245.1							
Mercury, Dissolved	ND ug/L		0.20	1	06/09/11 16:15	06/10/11 09:47	7439-97-6	
2510B Specific Conductance	Analytical Method: SM 2510B							
Specific Conductance	ND umhos/cm		10.0	1		06/10/11 11:30		
Salinity	Analytical Method: Calculated							
Salinity (as dissolved solids)	ND mg/L		6.0	1		06/10/11 15:15		
Salinity (as seawater)	0.012 PSU		0.010	1		06/10/11 15:15		
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity,Bicarbonate (CaCO3)	20.9 mg/L		20.0	1		06/08/11 12:45		
Alkalinity, Carbonate (CaCO3)	ND mg/L		20.0	1		06/08/11 12:45		
Alkalinity, Total as CaCO3	20.9 mg/L		20.0	1		06/08/11 12:45		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	ND mg/L		5.0	1		06/02/11 15:59		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	ND mg/L		5.0	1		06/02/11 13:09		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0							
Sulfate	ND mg/L		1.0	1		06/09/11 22:18	14808-79-8	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E							
Cyanide	ND mg/L		0.0050	1		06/08/11 16:59	57-12-5	

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Appendix D
Laboratory QC Results

QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	ICPM/26418	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET
Associated Lab Samples:	6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010		

METHOD BLANK:	987424	Matrix:	Water
Associated Lab Samples:	6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	4.0	06/07/11 08:52	
Antimony	ug/L	ND	0.50	06/07/11 08:52	
Arsenic	ug/L	ND	0.50	06/07/11 08:52	
Barium	ug/L	ND	0.30	06/07/11 08:52	
Beryllium	ug/L	ND	0.20	06/07/11 08:52	
Cadmium	ug/L	ND	0.080	06/07/11 08:52	
Calcium	ug/L	ND	20.0	06/07/11 08:52	
Chromium	ug/L	ND	0.50	06/07/11 08:52	
Copper	ug/L	ND	0.50	06/07/11 08:52	
Iron	ug/L	ND	50.0	06/07/11 08:52	
Lead	ug/L	ND	0.10	06/07/11 08:52	
Magnesium	ug/L	ND	5.0	06/07/11 08:52	
Manganese	ug/L	ND	0.50	06/07/11 08:52	
Nickel	ug/L	ND	0.50	06/07/11 08:52	
Potassium	ug/L	ND	20.0	06/07/11 08:52	
Selenium	ug/L	ND	0.50	06/07/11 08:52	
Silver	ug/L	ND	0.50	06/07/11 08:52	
Sodium	ug/L	ND	50.0	06/07/11 08:52	
Thallium	ug/L	ND	0.10	06/07/11 08:52	
Total Hardness by 2340B	ug/L	ND	71.0	06/07/11 08:52	
Vanadium	ug/L	ND	0.10	06/07/11 08:52	
Zinc	ug/L	ND	5.0	06/07/11 08:52	

LABORATORY CONTROL SAMPLE: 987425

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	80	82.0	103	85-115	
Antimony	ug/L	80	80.6	101	85-115	
Arsenic	ug/L	80	82.4	103	85-115	
Barium	ug/L	80	80.3	100	85-115	
Beryllium	ug/L	80	91.2	114	85-115	
Cadmium	ug/L	80	80.5	101	85-115	
Calcium	ug/L	1000	1010	101	85-115	
Chromium	ug/L	80	80.8	101	85-115	
Copper	ug/L	80	82.8	104	85-115	
Iron	ug/L	1000	1060	106	85-115	
Lead	ug/L	80	81.9	102	85-115	
Magnesium	ug/L	1000	988	99	85-115	
Manganese	ug/L	80	81.3	102	85-115	
Nickel	ug/L	80	82.4	103	85-115	

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

LABORATORY CONTROL SAMPLE: 987425

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Potassium	ug/L	1000	1010	101	85-115	
Selenium	ug/L	80	82.8	103	85-115	
Silver	ug/L	80	86.5	108	85-115	
Sodium	ug/L	1000	992	99	85-115	
Thallium	ug/L	80	82.2	103	85-115	
Total Hardness by 2340B	ug/L		6600			
Vanadium	ug/L	80	81.4	102	85-115	
Zinc	ug/L	80	81.0	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 987426 987427

Parameter	Units	MS Spike		MSD Spike		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Max Qual
		257929001	Result	Conc.	Conc.								
Aluminum	ug/L	332	80	80	487	602	194	337	70-130	21	20	D6,M1	
Antimony	ug/L	0.24J	80	80	80.4	82.8	100	103	70-130	3	20		
Arsenic	ug/L	0.24J	80	80	83.2	84.4	104	105	70-130	1	20		
Barium	ug/L	5.0	80	80	86.2	90.2	101	107	70-130	5	20		
Beryllium	ug/L	<0.020	80	80	81.6	84.4	102	106	70-130	3	20		
Cadmium	ug/L	<0.030	80	80	80.0	84.0	100	105	70-130	5	20		
Calcium	ug/L	452	1000	1000	1500	1660	104	121	70-130	10	20		
Chromium	ug/L	1.1	80	80	82.3	86.4	102	107	70-130	5	20		
Copper	ug/L	8.1	80	80	90.6	93.6	103	107	70-130	3	20		
Iron	ug/L	299	1000	1000	1360	1460	106	117	70-130	7	20		
Lead	ug/L	5.0	80	80	89.0	95.8	105	114	70-130	7	20		
Magnesium	ug/L	116	1000	1000	1110	1140	99	102	70-130	3	20		
Manganese	ug/L	7.2	80	80	89.0	91.8	102	106	70-130	3	20		
Nickel	ug/L	2.8	80	80	85.6	87.8	103	106	70-130	3	20		
Potassium	ug/L	99.2	1000	1000	1110	1130	101	103	70-130	2	20		
Selenium	ug/L	<0.22	80	80	80.9	84.7	101	106	70-130	5	20		
Silver	ug/L	0.090J	80	80	84.4	87.8	105	110	70-130	4	20		
Sodium	ug/L	281	1000	1000	1260	1310	98	103	70-130	4	20		
Thallium	ug/L	<0.050	80	80	81.3	83.6	102	104	70-130	3	20		
Total Hardness by 2340B	ug/L	1610			8310	8840				6	20		
Vanadium	ug/L	1.7	80	80	82.2	86.0	101	105	70-130	5	20		
Zinc	ug/L	20.9	80	80	102	106	102	107	70-130	4	20		

MATRIX SPIKE SAMPLE: 987428

Parameter	Units	6099946004	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	366	80	462	119	70-130	
Antimony	ug/L	ND	80	81.3	101	70-130	
Arsenic	ug/L	ND	80	84.2	105	70-130	
Barium	ug/L	20.1	80	103	103	70-130	
Beryllium	ug/L	0.53	80	75.0	93	70-130	
Cadmium	ug/L	44.0	80	125	101	70-130	

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING
Pace Project No.: 6099946

MATRIX SPIKE SAMPLE: 987428

Parameter	Units	6099946004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Calcium	ug/L	254000	1000	247000	-685	70-130	E,M6
Chromium	ug/L	ND	80	81.1	101	70-130	
Copper	ug/L	94.0	80	180	107	70-130	
Iron	ug/L	3140	1000	4140	100	70-130	
Lead	ug/L	2.3	80	82.5	100	70-130	
Magnesium	ug/L	21500	1000	22000	48	70-130	M1
Manganese	ug/L	2740	80	2770	37	70-130	M6
Nickel	ug/L	6.8	80	89.8	104	70-130	
Potassium	ug/L	1590	1000	2590	100	70-130	
Selenium	ug/L	ND	80	85.0	106	70-130	
Silver	ug/L	ND	80	83.4	104	70-130	
Sodium	ug/L	9880	1000	11100	125	70-130	
Thallium	ug/L	ND	80	81.4	102	70-130	
Total Hardness by 2340B	ug/L	723000		708000			
Vanadium	ug/L	ND	80	83.2	104	70-130	
Zinc	ug/L	7830	80	7650	-229	70-130	E,M6

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	ICPM/26417	Analysis Method:	EPA 200.8
QC Batch Method:	EPA 200.8	Analysis Description:	200.8 MET Dissolved
Associated Lab Samples:	6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010		

METHOD BLANK: 987419 Matrix: Water

Associated Lab Samples: 6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	4.0	06/04/11 20:26	
Antimony, Dissolved	ug/L	ND	0.50	06/04/11 20:26	
Arsenic, Dissolved	ug/L	ND	0.50	06/04/11 20:26	
Barium, Dissolved	ug/L	ND	0.30	06/04/11 20:26	
Beryllium, Dissolved	ug/L	ND	0.20	06/04/11 20:26	
Cadmium, Dissolved	ug/L	ND	0.080	06/04/11 20:26	
Calcium, Dissolved	ug/L	ND	20.0	06/04/11 20:26	
Chromium, Dissolved	ug/L	ND	0.50	06/04/11 20:26	
Copper, Dissolved	ug/L	ND	0.50	06/04/11 20:26	
Iron, Dissolved	ug/L	ND	50.0	06/04/11 20:26	
Lead, Dissolved	ug/L	ND	0.10	06/04/11 20:26	
Magnesium, Dissolved	ug/L	ND	5.0	06/04/11 20:26	
Manganese, Dissolved	ug/L	ND	0.50	06/04/11 20:26	
Nickel, Dissolved	ug/L	ND	0.50	06/04/11 20:26	
Potassium, Dissolved	ug/L	ND	20.0	06/05/11 13:40	
Selenium, Dissolved	ug/L	ND	0.50	06/04/11 20:26	
Silver, Dissolved	ug/L	ND	0.50	06/04/11 20:26	
Sodium, Dissolved	ug/L	ND	50.0	06/05/11 13:40	
Thallium, Dissolved	ug/L	ND	0.10	06/04/11 20:26	
Vanadium, Dissolved	ug/L	ND	0.10	06/04/11 20:26	
Zinc, Dissolved	ug/L	ND	5.0	06/04/11 20:26	

LABORATORY CONTROL SAMPLE: 987420

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	80	86.5	108	85-115	
Antimony, Dissolved	ug/L	80	82.3	103	85-115	
Arsenic, Dissolved	ug/L	80	85.4	107	85-115	
Barium, Dissolved	ug/L	80	84.0	105	85-115	
Beryllium, Dissolved	ug/L	80	76.7	96	85-115	
Cadmium, Dissolved	ug/L	80	82.5	103	85-115	
Calcium, Dissolved	ug/L	1000	1100	110	85-115	
Chromium, Dissolved	ug/L	80	82.1	103	85-115	
Copper, Dissolved	ug/L	80	81.6	102	85-115	
Iron, Dissolved	ug/L	1000	1040	104	85-115	
Lead, Dissolved	ug/L	80	82.8	104	85-115	
Magnesium, Dissolved	ug/L	1000	1070	107	85-115	
Manganese, Dissolved	ug/L	80	82.1	103	85-115	
Nickel, Dissolved	ug/L	80	82.3	103	85-115	
Potassium, Dissolved	ug/L	1000	1040	104	85-115	

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

LABORATORY CONTROL SAMPLE: 987420

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Selenium, Dissolved	ug/L	80	84.1	105	85-115	
Silver, Dissolved	ug/L	80	85.8	107	85-115	
Sodium, Dissolved	ug/L	1000	1070	107	85-115	
Thallium, Dissolved	ug/L	80	83.5	104	85-115	
Vanadium, Dissolved	ug/L	80	80.5	101	85-115	
Zinc, Dissolved	ug/L	80	80.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 987421 987422

Parameter	Units	10158821001		MS Spike Conc.		MSD Spike Conc.		MS Result		MSD Result		% Rec % Rec	% Rec Limits	Max RPD	Max RPD	Qual
		Result	Conc.	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result					
Aluminum, Dissolved	ug/L	<4.0	80	80	88.2	86.8	107	105	70-130	105	1520	70-130	.2	20	M1	
Antimony, Dissolved	ug/L	<0.50	80	80	84.4	84.5	105	105	70-130	105	103	70-130	.06	20		
Arsenic, Dissolved	ug/L	3.2	80	80	90.4	91.6	109	110	70-130	110	124	70-130	1	20		
Barium, Dissolved	ug/L	143	80	80	238	243	119	119	70-130	124	70-130	2	20			
Beryllium, Dissolved	ug/L	<0.20	80	80	76.2	76.4	95	96	70-130	95	96	70-130	.3	20		
Cadmium, Dissolved	ug/L	0.49	80	80	83.4	85.0	104	104	70-130	104	106	70-130	2	20		
Calcium, Dissolved	ug/L	145000	1000	1000	160000	160000	1480	1480	70-130	1520	1520	70-130	.2	20	M1	
Chromium, Dissolved	ug/L	0.80	80	80	83.3	83.0	103	103	70-130	103	103	70-130	.4	20		
Copper, Dissolved	ug/L	4.5	80	80	85.8	85.9	102	102	70-130	102	102	70-130	.2	20		
Iron, Dissolved	ug/L	<50.0	1000	1000	1040	1020	103	103	70-130	103	102	70-130	1	20		
Lead, Dissolved	ug/L	<0.10	80	80	80.2	82.2	100	100	70-130	100	103	70-130	2	20		
Magnesium, Dissolved	ug/L	41000	1000	1000	46800	47200	580	580	70-130	614	614	70-130	.7	20	M1	
Manganese, Dissolved	ug/L	<5.0	80	80	87.4	86.8	104	104	70-130	104	103	70-130	.7	20		
Nickel, Dissolved	ug/L	2.7	80	80	86.6	86.8	105	105	70-130	105	105	70-130	.2	20		
Potassium, Dissolved	ug/L	15300	1000	1000	17000	17000	161	161	70-130	170	170	70-130	.5	20	M1	
Selenium, Dissolved	ug/L	<0.50	80	80	84.3	81.8	105	105	70-130	102	102	70-130	3	20		
Silver, Dissolved	ug/L	<0.50	80	80	60.4	63.3	75	75	70-130	79	79	70-130	5	20		
Sodium, Dissolved	ug/L	201000	1000	1000	226000	227000	2520	2520	70-130	2600	2600	70-130	.4	20	M1	
Thallium, Dissolved	ug/L	<0.10	80	80	80.6	81.8	101	101	70-130	102	102	70-130	2	20		
Vanadium, Dissolved	ug/L	4.8	80	80	88.0	86.6	104	104	70-130	102	102	70-130	2	20		
Zinc, Dissolved	ug/L	8.0	80	80	96.2	90.4	110	110	70-130	103	103	70-130	6	20		

MATRIX SPIKE SAMPLE: 987423

Parameter	Units	6099946006		Spike Conc.		MS Result		MS % Rec		% Rec Limits		Qualifiers
		Result	Conc.	Conc.	Result	Conc.	Conc.	Result	Conc.	Result	Conc.	
Aluminum, Dissolved	ug/L	ND	ND	80	92.0	92.0	111	111	70-130	70-130	70-130	
Antimony, Dissolved	ug/L	ND	ND	80	82.1	82.1	102	102	70-130	70-130	70-130	
Arsenic, Dissolved	ug/L	ND	ND	80	86.3	86.3	108	108	70-130	70-130	70-130	
Barium, Dissolved	ug/L	ND	20.3	80	103	103	103	103	70-130	103	103	
Beryllium, Dissolved	ug/L	ND	ND	80	72.8	72.8	91	91	70-130	70-130	70-130	
Cadmium, Dissolved	ug/L	ND	29.2	80	112	112	103	103	70-130	103	103	
Calcium, Dissolved	ug/L	251000	1000	242000	242000	242000	-945	-945	70-130	70-130	70-130	M1
Chromium, Dissolved	ug/L	ND	ND	80	81.0	81.0	101	101	70-130	101	101	
Copper, Dissolved	ug/L	ND	3.8	80	84.3	84.3	101	101	70-130	101	101	

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

MATRIX SPIKE SAMPLE: 987423

Parameter	Units	Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	ND	1000	1040	103	70-130	
Lead, Dissolved	ug/L	ND	80	79.0	99	70-130	
Magnesium, Dissolved	ug/L	23500	1000	23700	24	70-130 M1	
Manganese, Dissolved	ug/L	2230	80	2280	63	70-130 M1	
Nickel, Dissolved	ug/L	6.2	80	86.4	100	70-130	
Potassium, Dissolved	ug/L	1920	1000	3010	110	70-130	
Selenium, Dissolved	ug/L	ND	80	83.0	103	70-130	
Silver, Dissolved	ug/L	ND	80	74.4	93	70-130	
Sodium, Dissolved	ug/L	10200	1000	11100	97	70-130	
Thallium, Dissolved	ug/L	ND	80	79.8	100	70-130	
Vanadium, Dissolved	ug/L	ND	80	79.2	99	70-130	
Zinc, Dissolved	ug/L	5040	80	4940	-119	70-130 M1	

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch: MERC/5454 Analysis Method: EPA 245.1

QC Batch Method: EPA 245.1 Analysis Description: 245.1 Mercury

Associated Lab Samples: 6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011

METHOD BLANK: 988864 Matrix: Water

Associated Lab Samples: 6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	06/08/11 12:51	

LABORATORY CONTROL SAMPLE: 988865

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.2	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 988866 988867

Parameter	Units	10158653002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
Mercury	ug/L	ND	5	5	4.4	4.2	86	81	85-115	6	30	M1

MATRIX SPIKE SAMPLE: 988868

Parameter	Units	6099946011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	ND	5	5.7	112	85-115	

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	MERC/5471	Analysis Method:	EPA 245.1
QC Batch Method:	EPA 245.1	Analysis Description:	245.1 Mercury - Dissolved
Associated Lab Samples:	6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011		

METHOD BLANK: 990673 Matrix: Water

Associated Lab Samples: 6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	ND	0.20	06/10/11 09:07	

LABORATORY CONTROL SAMPLE: 990674

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	5	5.3	105	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 990675 990676

Parameter	Units	MS Result	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
Mercury, Dissolved	ug/L	<0.037	5	5	4.8	4.9	97	97	85-115	.6	20

MATRIX SPIKE SAMPLE: 990677

Parameter	Units	10159057007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	<0.037	5	5.1	101	85-115	

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	MT/6149	Analysis Method:	SM 2510B
QC Batch Method:	SM 2510B	Analysis Description:	2510B Specific Conductance
Associated Lab Samples: 6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011			

METHOD BLANK:	991800	Matrix:	Water		
Associated Lab Samples: 6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011					
Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	10.0	06/10/11 10:31	

LABORATORY CONTROL SAMPLE:	991801	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1000	980	98	90-110	

SAMPLE DUPLICATE:	991802	6099946001	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	186	187	.6	20	

SAMPLE DUPLICATE:	991803	6099946010	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	192	188	2	20	

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	WET/29458	Analysis Method:	SM 2320B
QC Batch Method:	SM 2320B	Analysis Description:	2320B Alkalinity
Associated Lab Samples:	6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011		

METHOD BLANK:	826843	Matrix:	Water
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Associated Lab Samples:	6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011
-------------------------	--

Parameter	Units	Blank Result	Reporting		Qualifiers
			Limit	Analyzed	
Alkalinity, Carbonate (CaCO ₃)	mg/L	ND	20.0	06/08/11 12:45	
Alkalinity, Total as CaCO ₃	mg/L	ND	20.0	06/08/11 12:45	
Alkalinity,Bicarbonate (CaCO ₃)	mg/L	ND	20.0	06/08/11 12:45	

LABORATORY CONTROL SAMPLE:	826844
----------------------------	--------

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
					Limits	
Alkalinity, Total as CaCO ₃	mg/L	500	464	93	90-110	

SAMPLE DUPLICATE:	826845
-------------------	--------

Parameter	Units	6099822001 Result	Dup	Max RPD	Qualifiers
			Result		
Alkalinity, Carbonate (CaCO ₃)	mg/L	236	236	0	24 R1
Alkalinity, Total as CaCO ₃	mg/L	281	274	3	9
Alkalinity,Bicarbonate (CaCO ₃)	mg/L	45.6	38.0	18	9 R1

SAMPLE DUPLICATE:	826846
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Parameter	Units	6099822004 Result	Dup	Max RPD	Qualifiers
			Result		
Alkalinity, Carbonate (CaCO ₃)	mg/L	152	91.2	50	24 R1
Alkalinity, Total as CaCO ₃	mg/L	251	243	3	9
Alkalinity,Bicarbonate (CaCO ₃)	mg/L	98.8	152	42	9 R1

QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	WET/29358	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
Associated Lab Samples:	6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946009		

METHOD BLANK: 823417 Matrix: Water

Associated Lab Samples: 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	06/01/11 17:05	

SAMPLE DUPLICATE: 823418

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	6099946002	97.0	98.0	1	17

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	WET/29377	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
Associated Lab Samples:	6099946001, 6099946007, 6099946008, 6099946010, 6099946011		

METHOD BLANK:	823954	Matrix:	Water
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Associated Lab Samples: 6099946001, 6099946007, 6099946008, 6099946010, 6099946011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	5.0	06/02/11 15:55	

SAMPLE DUPLICATE: 823955

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	6099757001	2850	2870	1	17

SAMPLE DUPLICATE: 823956

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	6099946008	110	108	2	17

QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch: WET/29357 Analysis Method: SM 2540D

QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946009

METHOD BLANK: 823415 Matrix: Water

Associated Lab Samples: 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	06/01/11 16:46	

SAMPLE DUPLICATE: 823416

Parameter	Units	6099946002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	14.0	10	33	25	R1

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch: WET/29367 Analysis Method: SM 2540D

QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids

Associated Lab Samples: 6099946001, 6099946007, 6099946008, 6099946010, 6099946011

METHOD BLANK: 823465 Matrix: Water

Associated Lab Samples: 6099946001, 6099946007, 6099946008, 6099946010, 6099946011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	06/02/11 13:03	

SAMPLE DUPLICATE: 823466

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	27.0	25.0	8	25	

SAMPLE DUPLICATE: 823467

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	158	168	6	25	

QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	WETA/16607	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
Associated Lab Samples:	6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011		

METHOD BLANK: 827998 Matrix: Water

Associated Lab Samples: 6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010, 6099946011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	06/09/11 16:58	

LABORATORY CONTROL SAMPLE: 827999

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.8	97	90-110	

MATRIX SPIKE SAMPLE: 828002

Parameter	Units	6099946007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	584	250	806	89	61-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 828023 828024

Parameter	Units	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Max RPD	Max Qual
Sulfate	mg/L	21.1	25	25	44.3	44.2	92	92	61-119	0	10	

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	WETA/16590	Analysis Method:	SM 4500-CN-E
QC Batch Method:	SM 4500-CN-E	Analysis Description:	4500CNE Cyanide, Total
Associated Lab Samples:	6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010		

METHOD BLANK: 826788 Matrix: Water

Associated Lab Samples: 6099946001, 6099946002, 6099946003, 6099946004, 6099946005, 6099946006, 6099946007, 6099946008, 6099946009, 6099946010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	06/08/11 16:27	

LABORATORY CONTROL SAMPLE: 826789

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	.1	0.10	104	69-126	

MATRIX SPIKE SAMPLE: 826790

Parameter	Units	20890208 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.0084	.1	0.083	74	41-136	

SAMPLE DUPLICATE: 826791

Parameter	Units	20890209 Result	Dup Result	Max RPD	Qualifiers
Cyanide	mg/L	0.011	0.011	2	26

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QUALITY CONTROL DATA

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

QC Batch:	WETA/16591	Analysis Method:	SM 4500-CN-E
QC Batch Method:	SM 4500-CN-E	Analysis Description:	4500CNE Cyanide, Total
Associated Lab Samples:	6099946011		

METHOD BLANK: 826793 Matrix: Water

Associated Lab Samples: 6099946011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	06/08/11 16:56	

LABORATORY CONTROL SAMPLE: 826794

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	.1	0.11	110	69-126	

MATRIX SPIKE SAMPLE: 826795

Parameter	Units	6099946011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	ND	.1	0.099	99	41-136	

SAMPLE DUPLICATE: 826796

Parameter	Units	6099981001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide	mg/L	0.026	0.044	53	26	R1

QUALIFIERS

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

D6 The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

R1 RPD value was outside control limits.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
6099946001	DR-4-SW	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946002	DR-1	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946003	DR-2	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946004	DR-3	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946005	DR-4	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946006	DR-5	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946007	DR-6	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946008	DR-7	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946009	DR-8	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946010	DR-G	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946011	FB	EPA 200.8	ICPM/26418	EPA 200.8	ICPM/10784
6099946001	DR-4-SW	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946002	DR-1	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946003	DR-2	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946004	DR-3	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946005	DR-4	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946006	DR-5	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946007	DR-6	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946008	DR-7	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946009	DR-8	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946010	DR-G	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946011	FB	EPA 200.8	ICPM/26417	EPA 200.8	ICPM/10781
6099946001	DR-4-SW	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946002	DR-1	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946003	DR-2	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946004	DR-3	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946005	DR-4	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946006	DR-5	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946007	DR-6	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946008	DR-7	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946009	DR-8	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946010	DR-G	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946011	FB	EPA 245.1	MERC/5454	EPA 245.1	MERC/6272
6099946001	DR-4-SW	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946002	DR-1	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946003	DR-2	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946004	DR-3	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946005	DR-4	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946006	DR-5	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946007	DR-6	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946008	DR-7	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946009	DR-8	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946010	DR-G	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946011	FB	EPA 245.1	MERC/5471	EPA 245.1	MERC/6284
6099946001	DR-4-SW	SM 2510B	MT/6149		
6099946002	DR-1	SM 2510B	MT/6149		
6099946003	DR-2	SM 2510B	MT/6149		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
6099946004	DR-3	SM 2510B	MT/6149		
6099946005	DR-4	SM 2510B	MT/6149		
6099946006	DR-5	SM 2510B	MT/6149		
6099946007	DR-6	SM 2510B	MT/6149		
6099946008	DR-7	SM 2510B	MT/6149		
6099946009	DR-8	SM 2510B	MT/6149		
6099946010	DR-G	SM 2510B	MT/6149		
6099946011	FB	SM 2510B	MT/6149		
6099946001	DR-4-SW	Calculated	MT/6151		
6099946002	DR-1	Calculated	MT/6151		
6099946003	DR-2	Calculated	MT/6151		
6099946004	DR-3	Calculated	MT/6151		
6099946005	DR-4	Calculated	MT/6151		
6099946006	DR-5	Calculated	MT/6151		
6099946007	DR-6	Calculated	MT/6151		
6099946008	DR-7	Calculated	MT/6151		
6099946009	DR-8	Calculated	MT/6151		
6099946010	DR-G	Calculated	MT/6151		
6099946011	FB	Calculated	MT/6151		
6099946001	DR-4-SW	SM 2320B	WET/29458		
6099946002	DR-1	SM 2320B	WET/29458		
6099946003	DR-2	SM 2320B	WET/29458		
6099946004	DR-3	SM 2320B	WET/29458		
6099946005	DR-4	SM 2320B	WET/29458		
6099946006	DR-5	SM 2320B	WET/29458		
6099946007	DR-6	SM 2320B	WET/29458		
6099946008	DR-7	SM 2320B	WET/29458		
6099946009	DR-8	SM 2320B	WET/29458		
6099946010	DR-G	SM 2320B	WET/29458		
6099946011	FB	SM 2320B	WET/29458		
6099946001	DR-4-SW	SM 2540C	WET/29377		
6099946002	DR-1	SM 2540C	WET/29358		
6099946003	DR-2	SM 2540C	WET/29358		
6099946004	DR-3	SM 2540C	WET/29358		
6099946005	DR-4	SM 2540C	WET/29358		
6099946006	DR-5	SM 2540C	WET/29358		
6099946007	DR-6	SM 2540C	WET/29377		
6099946008	DR-7	SM 2540C	WET/29377		
6099946009	DR-8	SM 2540C	WET/29358		
6099946010	DR-G	SM 2540C	WET/29377		
6099946011	FB	SM 2540C	WET/29377		
6099946001	DR-4-SW	SM 2540D	WET/29367		
6099946002	DR-1	SM 2540D	WET/29357		
6099946003	DR-2	SM 2540D	WET/29357		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RICO SURFACE WATER SAMPLING

Pace Project No.: 6099946

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
6099946004	DR-3	SM 2540D	WET/29357		
6099946005	DR-4	SM 2540D	WET/29357		
6099946006	DR-5	SM 2540D	WET/29357		
6099946007	DR-6	SM 2540D	WET/29367		
6099946008	DR-7	SM 2540D	WET/29367		
6099946009	DR-8	SM 2540D	WET/29357		
6099946010	DR-G	SM 2540D	WET/29367		
6099946011	FB	SM 2540D	WET/29367		
6099946001	DR-4-SW	EPA 300.0	WETA/16607		
6099946002	DR-1	EPA 300.0	WETA/16607		
6099946003	DR-2	EPA 300.0	WETA/16607		
6099946004	DR-3	EPA 300.0	WETA/16607		
6099946005	DR-4	EPA 300.0	WETA/16607		
6099946006	DR-5	EPA 300.0	WETA/16607		
6099946007	DR-6	EPA 300.0	WETA/16607		
6099946008	DR-7	EPA 300.0	WETA/16607		
6099946009	DR-8	EPA 300.0	WETA/16607		
6099946010	DR-G	EPA 300.0	WETA/16607		
6099946011	FB	EPA 300.0	WETA/16607		
6099946001	DR-4-SW	SM 4500-CN-E	WETA/16590		
6099946002	DR-1	SM 4500-CN-E	WETA/16590		
6099946003	DR-2	SM 4500-CN-E	WETA/16590		
6099946004	DR-3	SM 4500-CN-E	WETA/16590		
6099946005	DR-4	SM 4500-CN-E	WETA/16590		
6099946006	DR-5	SM 4500-CN-E	WETA/16590		
6099946007	DR-6	SM 4500-CN-E	WETA/16590		
6099946008	DR-7	SM 4500-CN-E	WETA/16590		
6099946009	DR-8	SM 4500-CN-E	WETA/16590		
6099946010	DR-G	SM 4500-CN-E	WETA/16590		
6099946011	FB	SM 4500-CN-E	WETA/16591		

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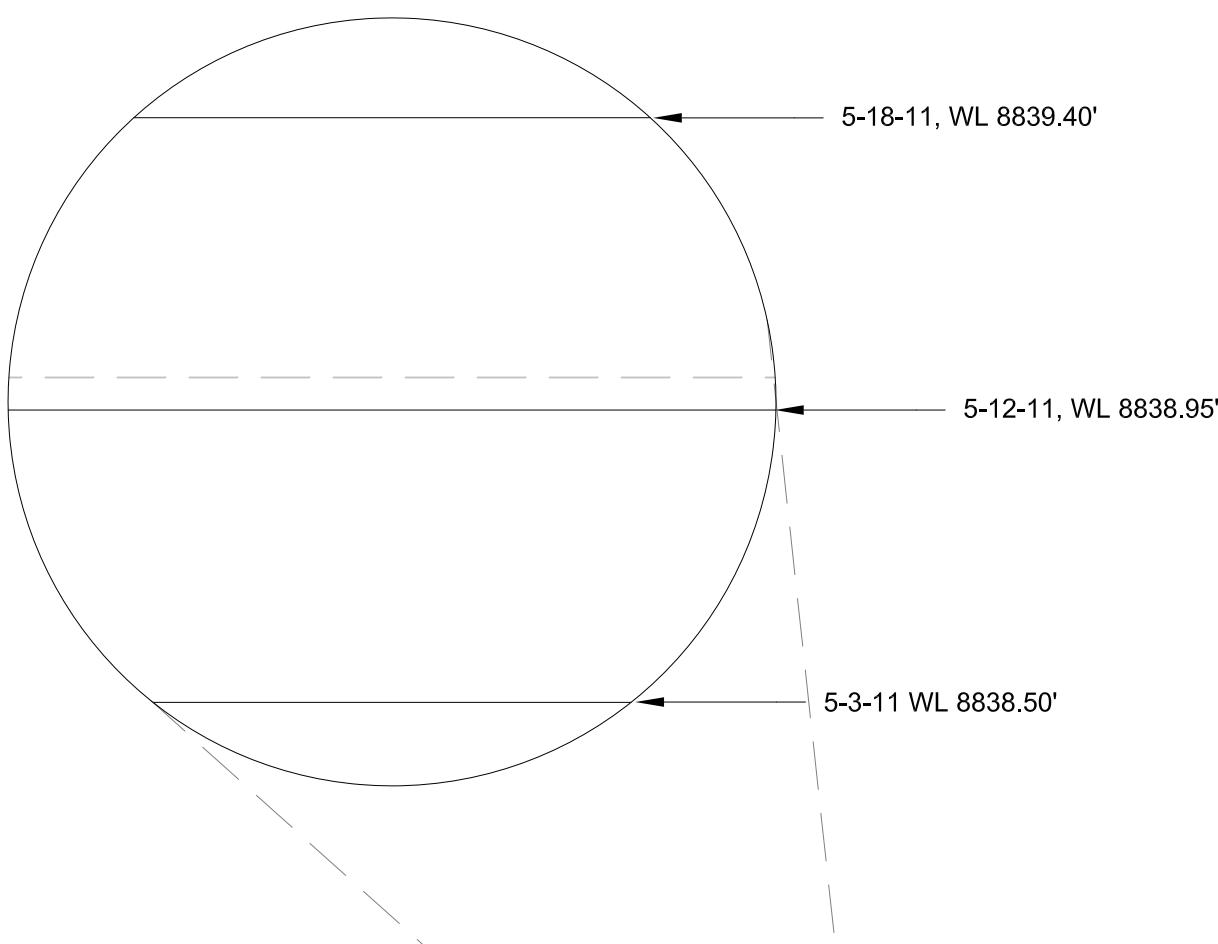
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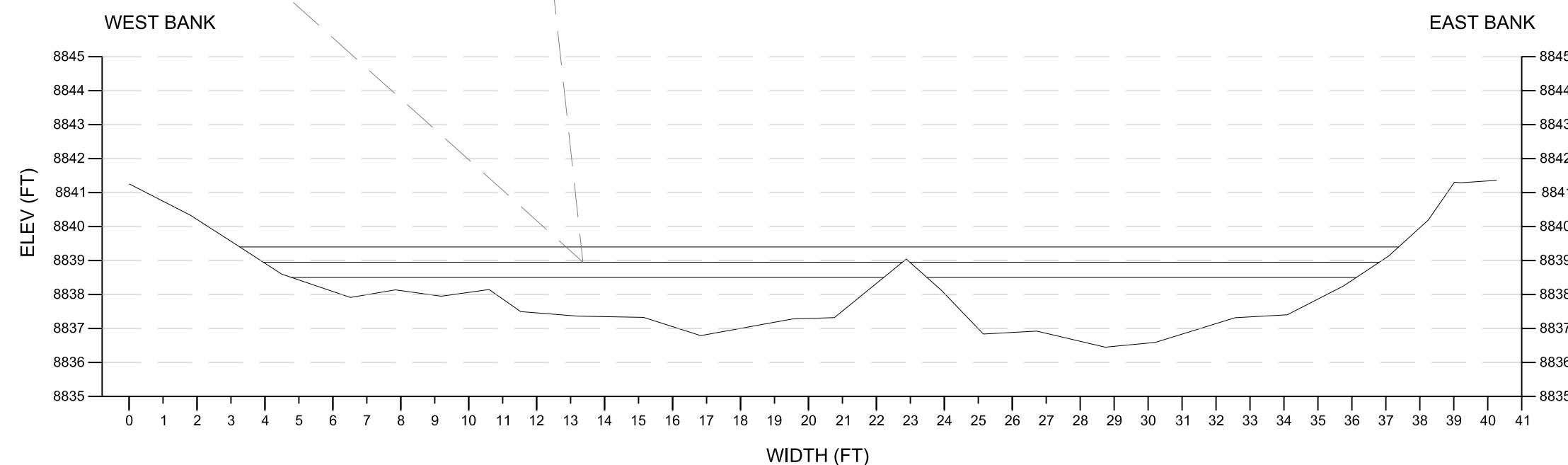
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Appendix E

Flow Cross Sections



DR-1 CROSS SECTION



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General Notes		
 <i>Scale in Feet</i> 		
No.	Revision/Issue	Date

ATLANTIC RICHFIELD
COMPANY



ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

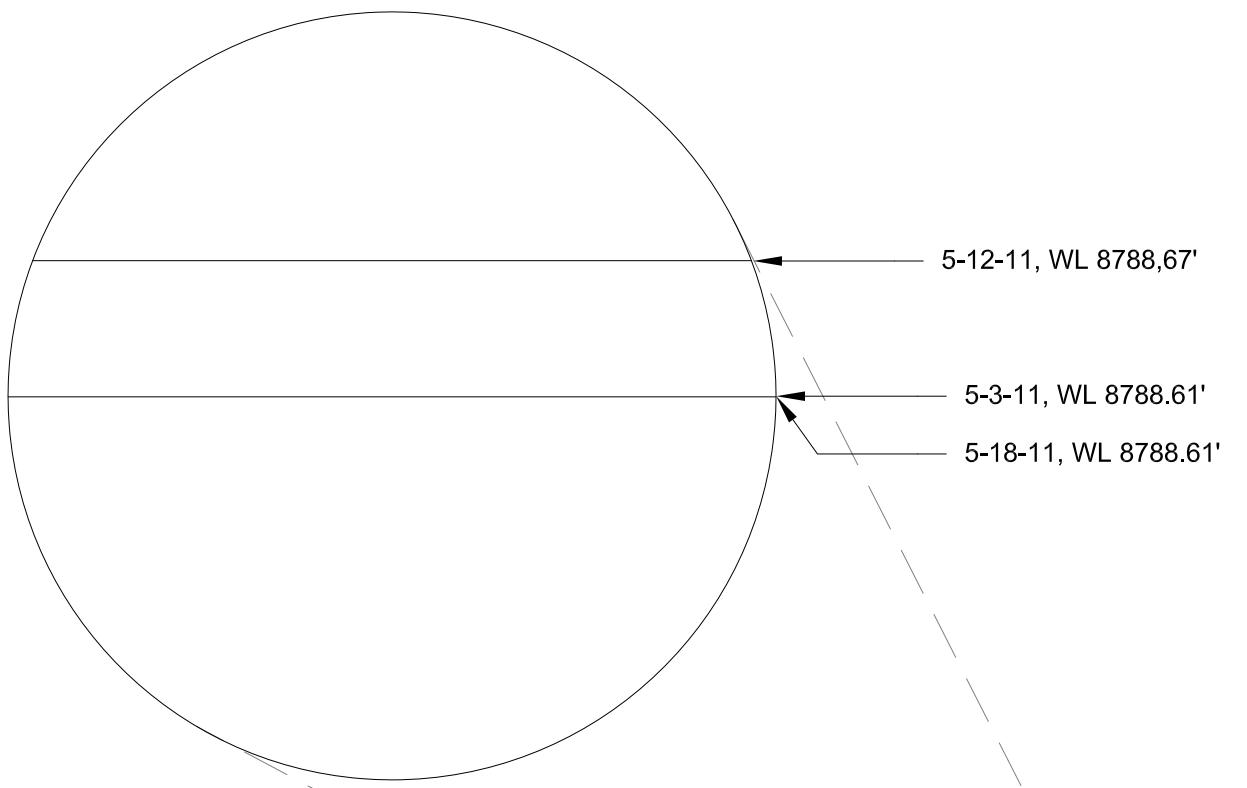
**RICO SURFACE
WATER SAMPLING**

**DOLORES RIVER CROSS
SECTION AT SAMPLING
STATION DR-1**

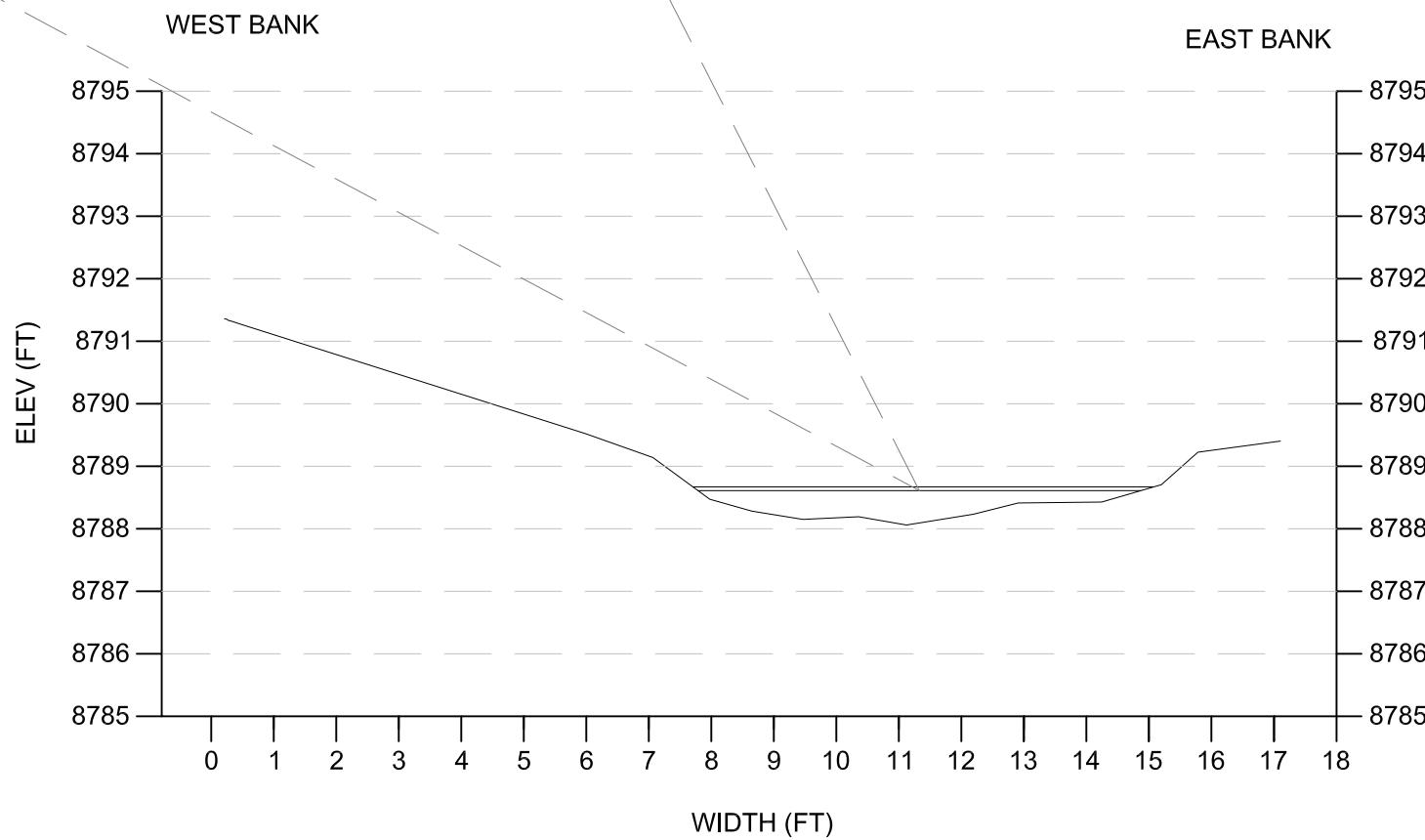
RICO, CO

Project	Figure
Date	16-MAY-2011
Scale	

3



DR-5 CROSS SECTION



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General Notes											
 <i>Scale in Feet</i> 											
<table border="1"> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td>No.</td><td>Revision/Issue</td><td>Date</td></tr> </table>									No.	Revision/Issue	Date
No.	Revision/Issue	Date									

ATLANTIC RICHFIELD
COMPANY



ANDERSON
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ENGINEER: CS, MAD
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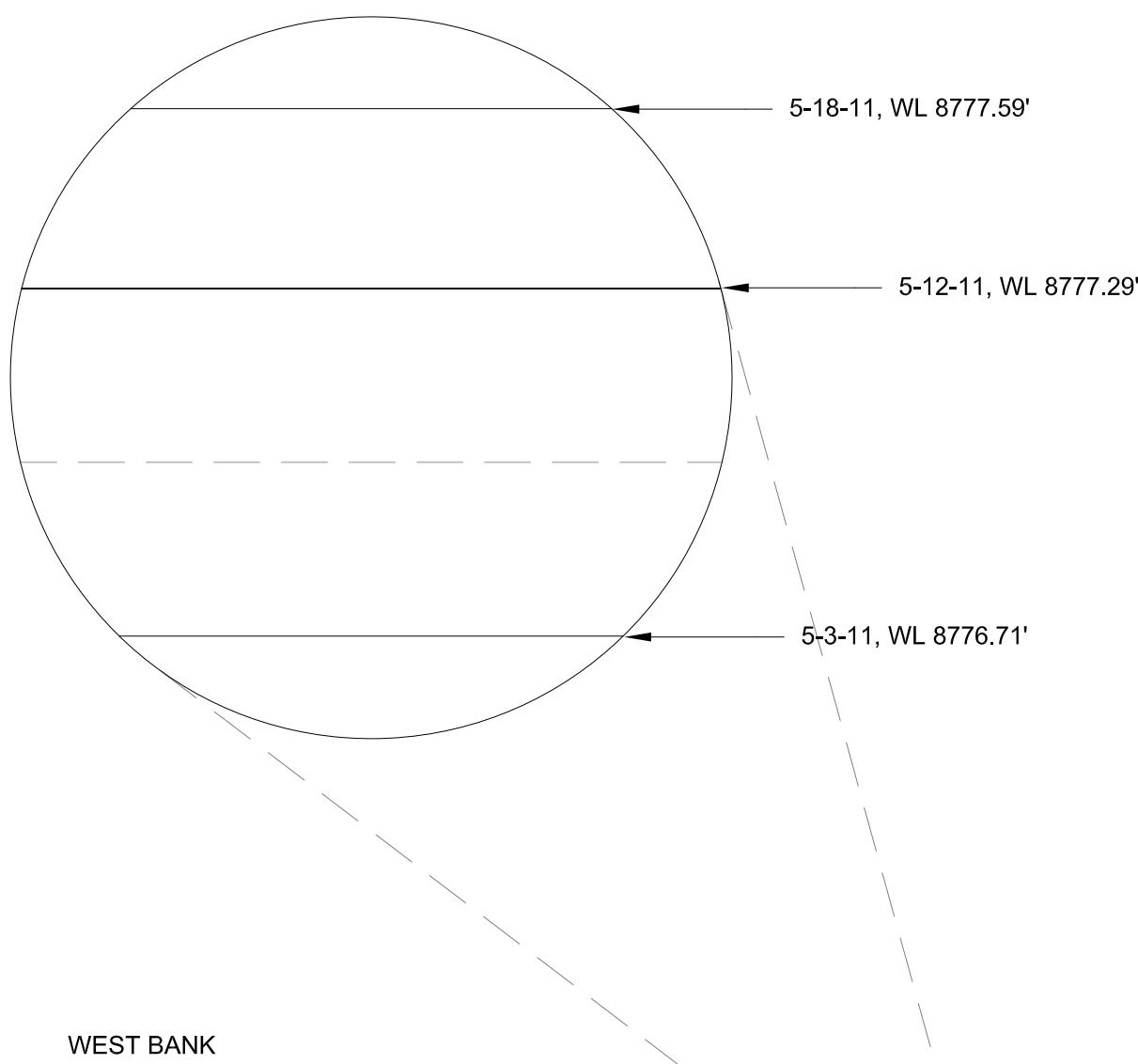
**RICO SURFACE
WATER SAMPLING**

**POND 8 EMBANKMENT
CROSS SECTION AT
SAMPLING STATION DR-5**

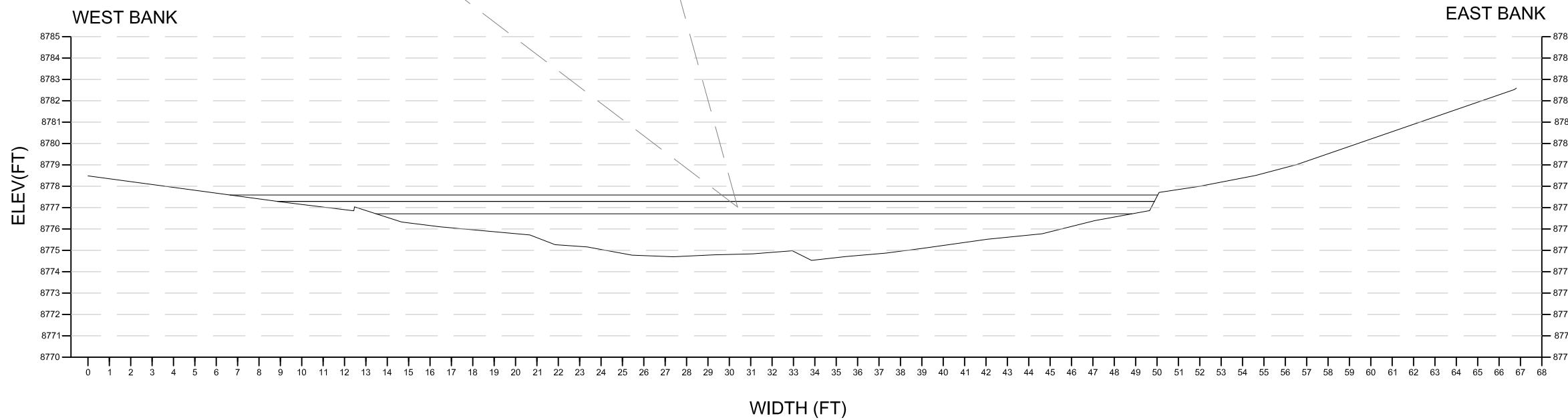
RICO, CO

Project	Figure
Date	16-MAY-2011
Scale	

4



DR-2 CROSS SECTION



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General Notes		
	Scale in Feet 0 3 6	
No.	Revision/Issue	Date

ATLANTIC RICHFIELD
COMPANY



ANDERSON
ENGINEERING COMPANY, INC.

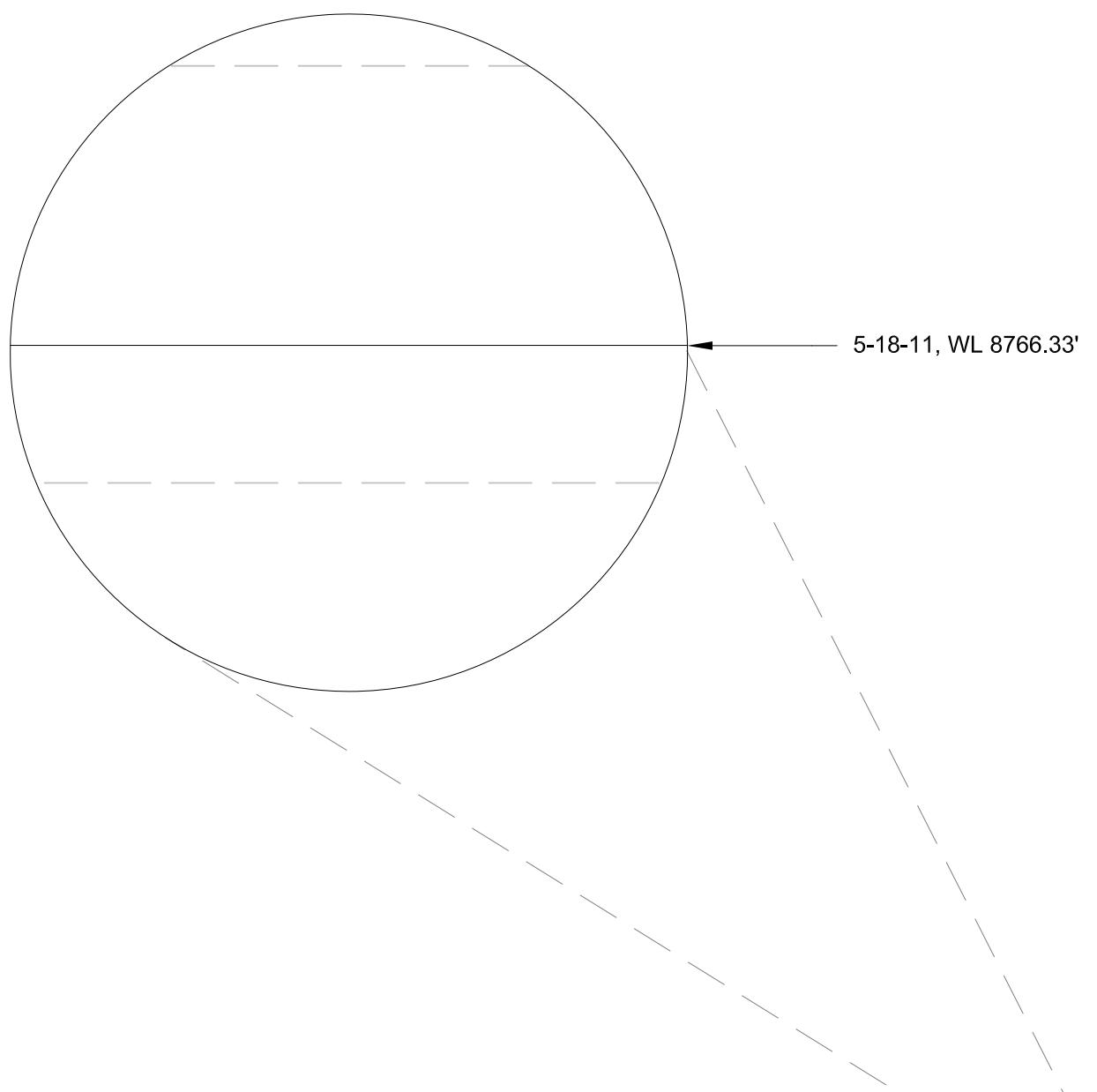
DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

**RICO SURFACE
WATER SAMPLING**

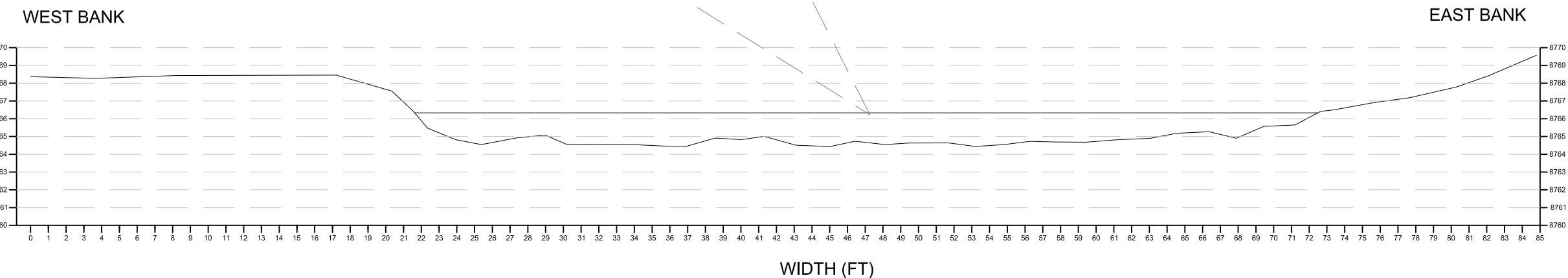
**DOLORES RIVER CROSS
SECTION AT SAMPLING
STATION DR-2**

RICO, CO

Project	Figure
Date 16-MAY-2011	Scale
5	



DR-7 CROSS SECTION



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General Notes		
 <i>Scale in Feet</i> 		
No.	Revision/Issue	Date

ATLANTIC RICHFIELD COMPANY



ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

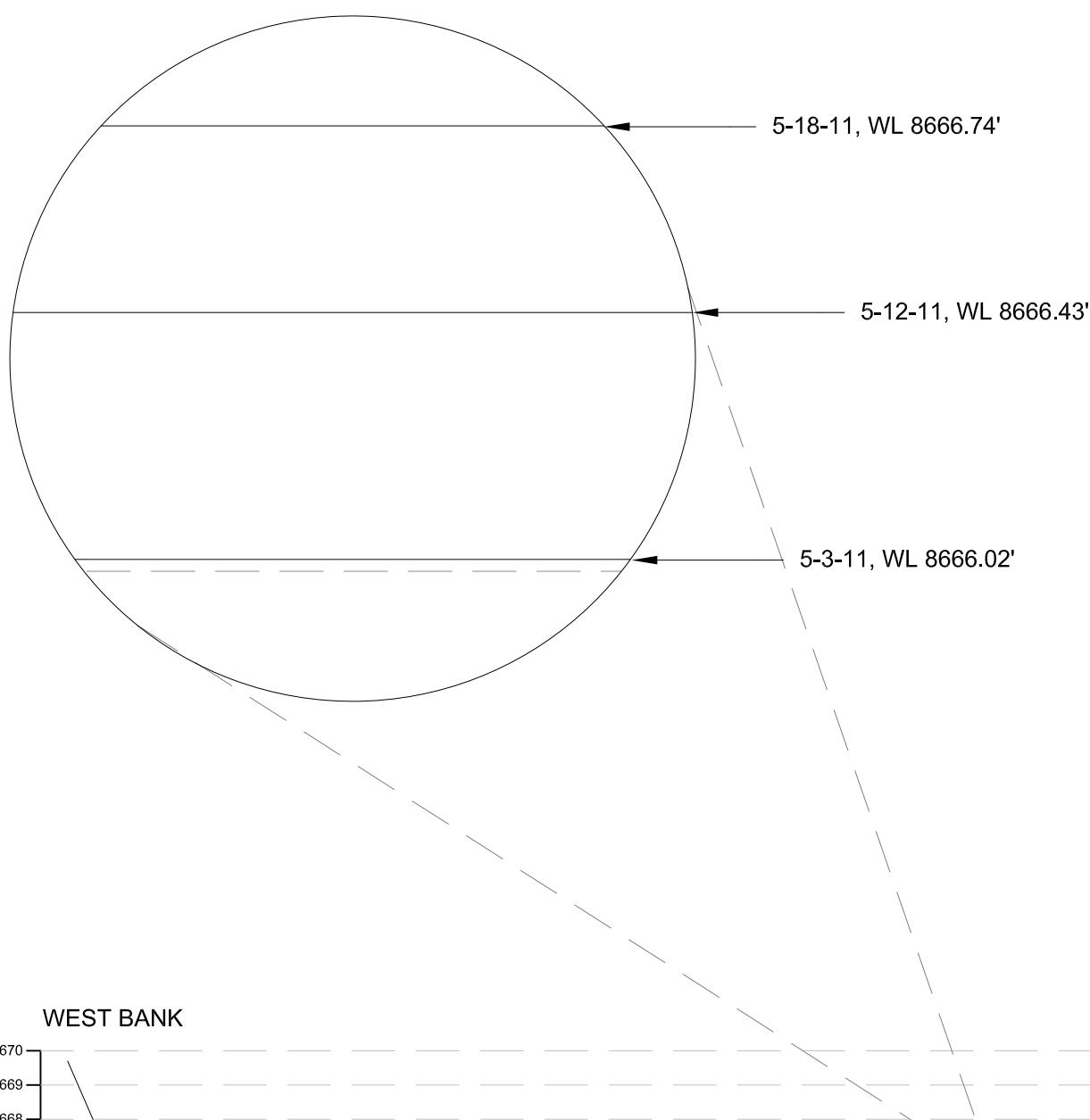
RICO SURFACE WATER SAMPLING

DOLORES RIVER CROSS SECTION AT SAMPLING STATION DR-7

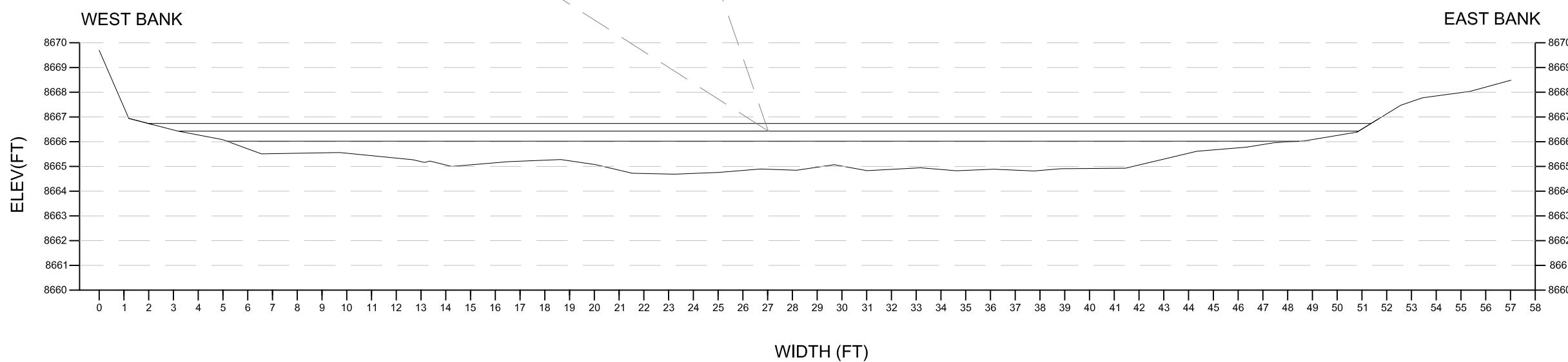
RICO, CO

Project	Figure
Date	21-JUN-2011
Scale	

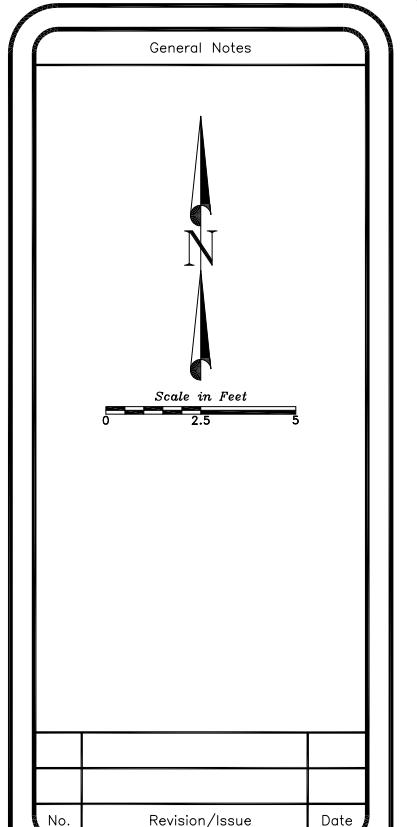
6



DR-4-SW CROSS SECTION



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ATLANTIC RICHFIELD
COMPANY



ANDERSON
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DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

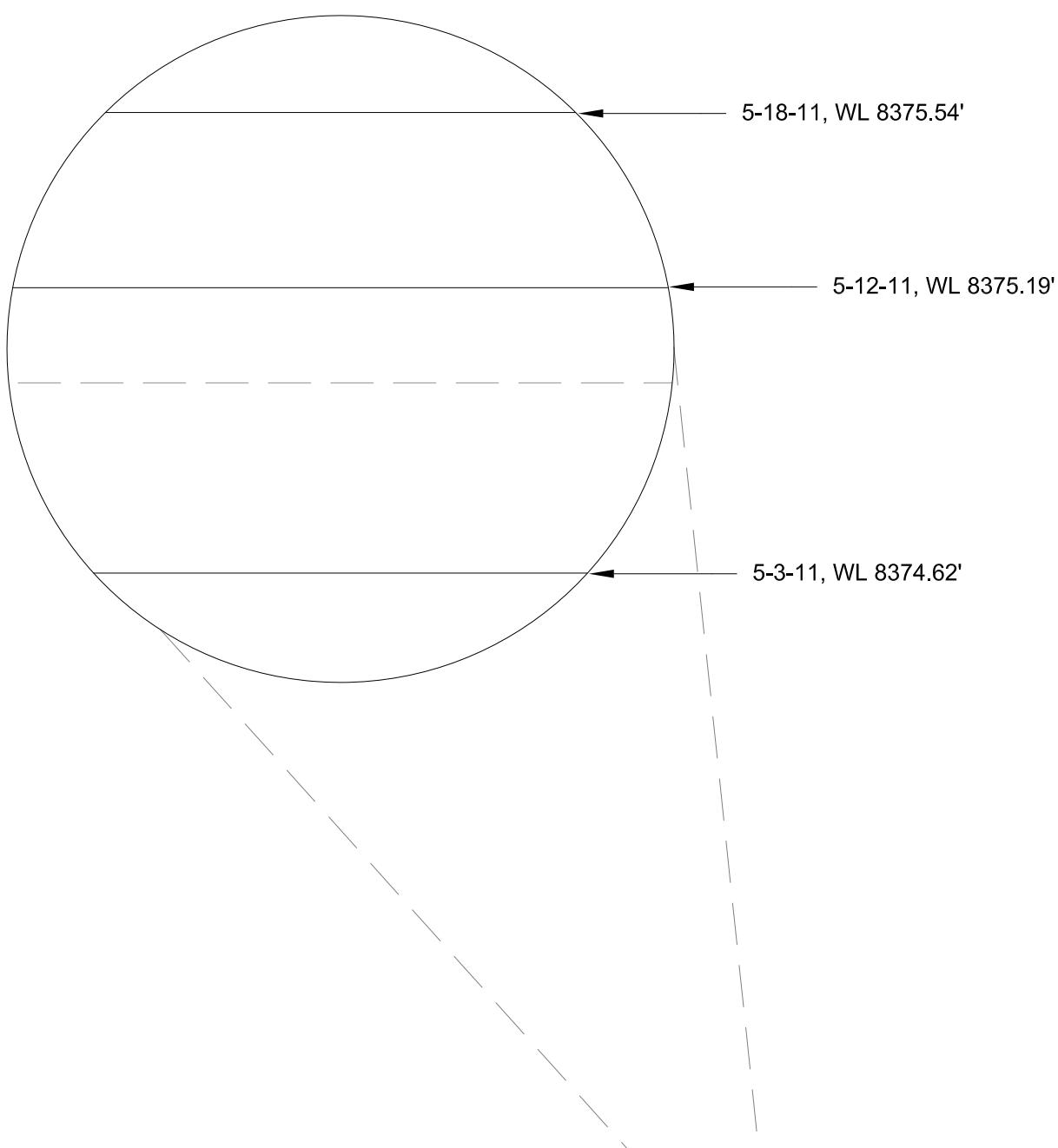
**RICO SURFACE
WATER SAMPLING**

**DOLORES RIVER CROSS
SECTION AT SAMPLING
STATION DR-4-SW**

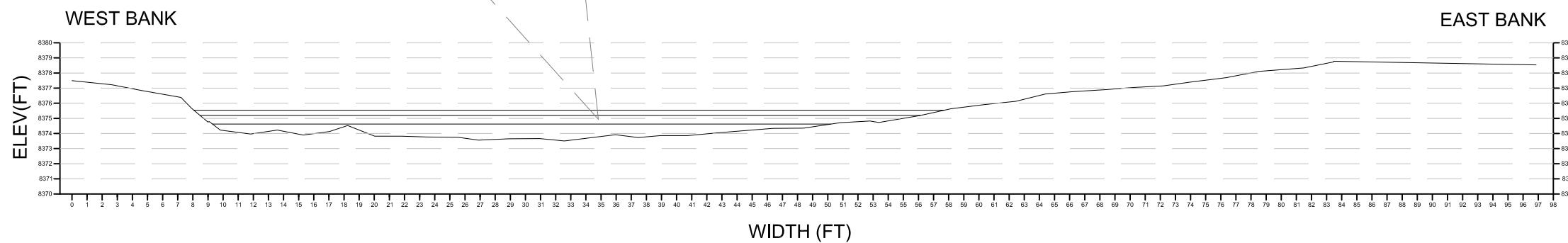
RICO, CO

Project	Figure
Date	16-MAY-2011
Scale	

7



DR-G CROSS SECTION



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General Notes		
 <i>Scale in Feet</i> 		
No.	Revision/Issue	Date

ATLANTIC RICHFIELD
COMPANY



ANDERSON
ENGINEERING COMPANY, INC.

DRAWN BY: MAD
ENGINEER: CS, MAD
APPROVED:

**RICO SURFACE
WATER SAMPLING**

**DOLORES RIVER CROSS
SECTION AT SAMPLING
STATION DR-G**

RICO, CO

Project	Figure
Date	16-MAY-2011
Scale	

Appendix F
Chain of Custody Records



bp
A BP affiliated company

184169

Page 1 of 2

Chain of Custody Record

Project Name: Rico Surface Water Sampling

BP BU/AR Region/Envos Segment:

State or Lead Regulatory Agency: EPA

Requested Due Date (mm/dd/yy): 06/09/11

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Lab Name: <u>Pace Analytical Services, Inc.</u>	BP/AR Facility No.:	Consultant/Contractor:
Address: <u>9608 Loiret Blvd</u>	BP/AR Facility Address:	Address:
	Site Lat/Long:	
Lab PM: <u>Colleen Koporc</u>	California Global ID No.:	Consultant/Contractor Project No.:
Tele/Fax: <u>(913) 563-1407</u>	Envos Project No.:	Consultant/Contractor PM:
BP/AR EBM:	Provision or OOC (circle one)	Tele/Fax:
Address:	Phase/WBS:	Report Type & QC Level:
	Sub Phase/Task:	E-mail EDD To:
Tele/Fax:	Cost Element:	Invoice to: Consultant or BP or Atlantic Richfield Co. (circle one)

Item No.	Sample Description	Time	Date	Matrix	Laboratory No.	No. of Containers	Preservative				Requested Analysis						Sample Point Lat/Long and Comments <i>6099446</i>		
							Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	NaOH	Total Metals / Hardness	Dissolved Metals	Cyanide	Salinity	Alkalinity	TDS	
1	DR-4-SW BP2U	BP3U	BP3C	X	BP3N ^{1.5}	5	X		X		X	X	X	X	X	X	X	BP3F ^{1.5}	01
2	DR-1			X		5	X		X		X	X	X	X	X	X	X		02
3	DR-2			X		5	X		X		X	X	X	X	X	X	X		03
4	DR-3			X		5	X		X		X	X	X	X	X	X	X		04
5	DR-4			X		5	X		X		X	X	X	X	X	X	X		05
6	DR-5			X		5	X		X		X	X	X	X	X	X	X		06
7	DR-6			X		5	X		X		X	X	X	X	X	X	X		07
8	DR-7			X		5	X		X		X	X	X	X	X	X	X		08
9	DR-8			X		5	X		X		X	X	X	X	X	X	X		09
10	DR-6	↓	↓	↓	X	5	X		X		X	X	X	X	X	X	X		010

Sampler's Name: <u>Tim Barber</u>	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: <u>Anderson Engineering Co., Inc.</u>	<u>Mark DeFrize / AECI</u>	5-31-11	5:30p	<u>MTL Reh</u>	6-1-11	8:50
Shipment Date: <u>5-31-11</u>						
Shipment Method:						
Shipment Tracking No:						

Special Instructions:

age 44
999 for 44

Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 45.6°F | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

Y

Y/N

Laboratory Copy

N

BP COC Rev. 5 10/11/2006

N



184170

Chain of Custody Record

Project Name: Rico Surface Water Sampling
 BP BU/AR Region/Envos Segment:
 State or Lead Regulatory Agency: EPA
 Requested Due Date (mm/dd/yy): 06/09/11

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

Lab Name: <u>Pace Analytical Services, Inc.</u>	BP/AR Facility No.:	Consultant/Contractor:
Address: <u>9608 Loinct Blvd</u>	BP/AR Facility Address:	Address:
<u>Lenexa, KS, 66219</u>	Site Lat/Long:	Consultant/Contractor Project No.:
Lab PM: <u>Colleen Kopore</u>	California Global ID No.:	Consultant/Contractor PM:
Tele/Fax: <u>(913) 563-1407</u>	Envos Project No.:	Tele/Fax:
BP/AR EBM:	Provision or OOC (circle one)	Report Type & QC Level:
Address:	Phase/WBS:	E-mail EDD To:
Tele/Fax:	Sub Phase/Task:	Invoice to: Consultant or BP or Atlantic Richfield Co. (circle one)
Lab Bottle Order No: <u>49678</u>	Cost Element:	

Item No.	Sample Description	Time	Date	Matrix	Laboratory No.	No. of Containers	Preservative					Requested Analysis					Sample Point Lat/Long and Comments <i>6099946</i>		
							Unpreserved	H ₂ SO ₄	HNO ₃	HCl	Methanol	NaOH	Total Metals / Hardness	Dissolved Metals	Sulfide	Salinity	Alkalinity / TDS	TSS, Salts	
1	FB BP2U	BP3U	BP3C	X	BP3N 1.5	5	X	X			X		X	X	X	X		BP3F 1.5	001
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Sampler's Name: <u>Tim Bartoe</u>	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: <u>Anderson Engineering, Co., Inc.</u>	<u>Mark DeFrizzi / AEI</u>	<u>5-31-11</u>	<u>6:30p</u>	<u>Mr. R. H.</u>	<u>6-1-11</u>	<u>8:50</u>
Shipment Date: <u>5-31-11</u>						
Shipment Method:						
Shipment Tracking No:						

Special Instructions:						
99910	Custody Seals In Place: Yes / No	Temp Blank: Yes / No	Cooler Temp on Receipt: °F/C	Trip Blank: Yes / No	MS/MSD Sample Submitted: Yes / No	
Y	Laboratory Copy					
BP COC Rev. 5 10/11/2006						

Sample Condition Upon Receipt – ESI Tech Specs

Client Name: BP

Project #: 6099946
7955 3856 5751

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Optional

Proj Due Date: 6/13/11

Proj Name: Rico Surface Water

Sampling

Tracking #: 8758 2856 7215

Pace Shipping Label Used? Yes No

Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No

Packing Material: Bubble Wrap Bubble Bags Foam None Other ZPLC

Thermometer Used: T-191 / T-194

Type of Ice: Wet Blue None Samples received on ice, cooling process has begun.

Cooler Temperature: 4.1, 4.5

Temperature should be above freezing to 6°C

Date and initials of person examining
contents: MR 6-1-11

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody filled out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler name & signature on COC:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time analyses (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct containers used: -Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. <u>Sample</u> <u>Date</u> <u>Time</u>
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. <u>DR-4-SW</u> <u>5/26/11</u> <u>13:45</u> <u>1:45</u>
Unpreserved 5035A soils frozen w/in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. <u>PR-1</u> <u>5-25-11</u> <u>3:30</u>
Filtered volume received for dissolved tests?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>DR-2</u> <u>5-25-11</u> <u>5:15</u>
Sample labels match COC: -Includes date/time/ID/analyses Matrix:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <u>DR3</u> <u>5-25-11</u> <u>4:15</u> <u>DR4</u> <u>5-25-11</u> <u>4:31</u> <u>DR5</u> <u>5-25-11</u> <u>4:53</u>
All containers needing preservation have been checked. All containers needing preservation are found to be in compliance with EPA recommendation. Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	14. <u>DR6</u> <u>5-26-11</u> <u>2:55</u> <u>DR7</u> <u>5-26-11</u> <u>2:37</u> <u>DR8</u> <u>5-25-11</u> <u>4:23</u>
Trip Blank present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Initial when completed Lot # of added preservative
Pace Trip Blank lot # (if purchased):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	15. <u>DR-6</u> <u>5-26-11</u> <u>1:20</u> <u>FB</u> <u>5-26-11</u> <u>3:20</u>
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Project sampled in USDA Regulated Area:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	17. List State: <u>NC</u>

Client Notification/ Resolution:

Copy COC to Client? Y / N

Field Data Required? Y / N

Person Contacted: _____

Date/Time: _____

Temp Log: Record start and finish times when unpacking cooler, if >20 min, recheck sample temps.

Comments/ Resolution: _____

Start: 11:20 Start:

Project Manager Review: CPK

Date: 10/3/11

End: 11:40 End:

Temp: Temp:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the NCDENR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Appendix G

Field Photos



Cross Section at Station DR-1



Cross Section at Station DR-7



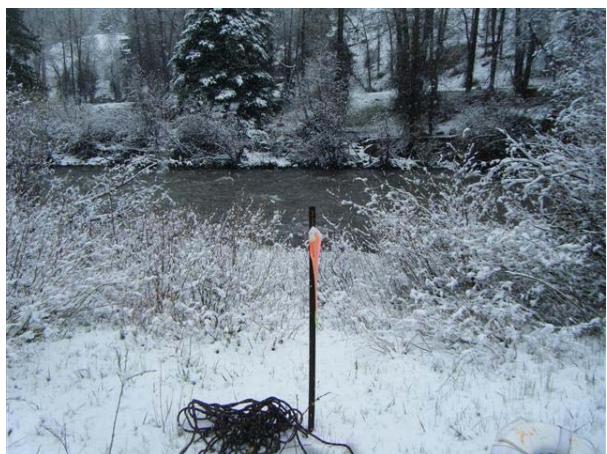
Cross Section at Station DR-2



Cross Section at Station DR-4-SW



Cross Section at Station DR-5



Cross Section at Station DR-G



Orpheus Mini Installation at South Flume



Ultrasonic Sensor Installation at North Flume



Equipment Housing at North Flume

Appendix H
Field Log Book Records

4/26

5/3/11

Tuesday

Clear
32°

GROUND WATER WELLS

Flume at Shanty 3/11 Day/2011

1. GW-7 TOP OF LIP
20.36

Field measurements

DO 1.67
 pH 7
 Temp 1.6°C
 EC 347 μS
 Depth 0.58

2. GW-6 TOP OF LIP
20.9

#1 F. 3 R. L.

3. GW-5 TOP OF LIP
19.19

BM 4 25
 WTR 10 14

4. GW-4 TOP OF LIP
9.38#2 P. L.
BM 4 285. EB-2 TOP OF LIP
15.15

Pond 7 53

#1 R.L.
 BM 5 46
 water 8.32

3/May/2011 Tues Clear
 Upper Flume 3/May/2011 40-50°
 Field Measurements:
 DO .68
 pH 6.85
 Temp 17.5°C
 EC 12.36 µS
 E.C.D. ~~sec~~ 0.55

3/May/2011 Tuesday Clear
 Ground WATER wells 40-50's
 GW - 4 9.42
 GW - 5 16.95
 GW - 6 19.12
 GW - 7 19.91
 EB - 2 15.1

4 R.L.

Bm 4 49
 WTR 8 67

5 R.L.

Bm 5 42
 WTR 7 91

6 R.L.

Bm 5 00
 WTR 8 92

5-11-11

Installed ultrasonic flow
water level meter at north
flume.

Depth from bottom of sensor
to bottom of north flume
2 ft 7/8 in

5-12-11

South flume field measurements
by H. Detritz

DO 1.32 ppm

pH 7.23

Temp 6.3°C

EC 1256 μ S

depth - 7 1/4"

North flume Field data

DO 0.63 ppm

Temp 16.3°C

pH 6.91

EC 1195 μ S

depth 6 1/4"

S-12-11

Installed Orpheus Mini at
South flume

Flume depth = 30 in = 2.5'
depth to water = $22\frac{3}{4} \text{ in} = 1.896'$

5/11/11 w/mark showing 3/12/11 w/mark clear
100. Equipment Calibrations 32° 40°
100. on site Rico

100. North Flame 472
set up shack

7:15 Leave site BM 2 490

8:15 Cortez: clean up panel 539

9:00 End for the Day

GW-4 14.21

TP-B 18.90

EB-2 19.75

GW-6 19.05

GW-7 19.75

GW-5 18.94

5/12/11

Bm #1 508

WTR 749

Bm #4 406

WTR 753

Bm 5 488

694

Bm 6 423

753

S-18-11

Arrived on site 8:45 am
Reviewed safety, TSEA

Station DR-3 - Adit discharge

Field measurements:

pH 6.82

Temp 15.2°C

Cond. 1166 μS

DO 0.64 ppm

Sample collected at 9:15 am

S-18-11

Station DR-8
Duplicate of DR-3

Field Measurements:

pH 6.82

T 15.2°C

Cond 1166 μS

DC 0.64 ppm

Collected at 9:15 am

5-18-11

Field Blank FB

Field measurements

pH 6.97

T 11.2°C

EC 0.0 µS

DO 1.01 ppm

Time Collected 9:45 am

5-18-11

Station DR-1

Field measurements

pH 6.26

T 3.7

EC 132.2 µS

DO 1.50 ppm

Sample Collected at: 10:30 am

S-18-11

DR-4 → Pond 1S discharge
Field tests
pH 7.54
Temp 10.0°C
EC 1209 μS
DO 0.87 ppm

Sample Collected at 11:00am

S-18-11

DR-2
Pre-l tests
pH 6.24
T 2.7°C
EC 137.0 mS
DO 1.51 ppm

Sample collected at 11:40am

S-18-11

DR-5 → Pond & discharge

Field tests

pH 7.43

T 19°C

EC 1381 μS

DO 1.3 ppm

Field sample collected at: 11:55 am

S-18-11

DR-6 → outlet discharge

Field tests

pH 6.96

T 74°C

EC 1570 μS

DO 1.15 ppm

Collected at 12:05 pm

S-18-11

DR-7 → Downstream of system
outfall

Field tests

pH 7.61

T 4.3°C

EC 209 μS

DO 1.44 ppm

DR-4-SW - Below Silver Swan

Field tests

pH 7.52

T 4.1°C

EC 171.6 μS

DO 1.49 ppm

Collected at 4:05pm

Sample Collected at 12:45pm

DR-7 location moved to
this location from previous
location downstream of bridge

flow velocities

Sam's pictures:

DR-1A, DR-2, ~~DR-7~~, DR-2A

DR-3A, 0

Mine: DR-1, DR-G, DR-4-SW,

DR-3A^{1c}, DR-2A^{2d}, DR-7^{1e}, DR-2, DR-5, DR-1A

Need: ~~DR-7~~, DR-5, DR-2A, ~~DR-3A~~,

~~DR-4-SW~~, DR-G

DR-G - USGS Gauging Station

Field tests

pH 6.41

T 5.3 °C

EC 240 mS

DO 1.39 ppm

Collected at: 5:10pm

Flow velocities:

Not collected; flow in excess of 3 feet deep at over 6 ft/s. Could not stand in water safely.

18/May/2011

Wednesday

GW-4 9.33

GW-5 18.7

GW-6 20.39

GW-7 19.61

EB-2 14.84

BM 1 RVR 5¹⁶RVR 7¹²BM 3 5⁰⁰

RVR 1000

12 5⁰⁰BM 2 5¹⁸Pond 7⁹³

BM 6 448

RVR 7⁴⁸BMS 5³⁰RVR 7⁰⁵

DR-6 East → West

Flow meas (ft/s):

12.8	2.6	3.88	3.98	3.48
4.26	3.75	3.66	6.14	

DID NOT FINISH, unsafe
velocity and depth

DR-4-EW

Flow (ft/s) East → West

1.16	1.83	3.88	3.17	4.01
2.11	4.48	5.31	4.28	6.08
4.07	4.07	4.42	5.16	
3.80	5.85	1.91	0.43	

DR-3A East → West Vel. ft/s

1.97	3.19	2.18	3.38
4.42	4.52	4.65	4.69
5.20	5.87	4.08	5.23
4.06	2.33	1.62	

5-18-11

DR-3A
BM A4 445
RVR 846

DR-2A Velocities f/s East→West					
3.96	3.49	3.71	4.62	2.69	
3.12	3.55	2.93	3.16	5.13	
			4.97	5.17	
DR-2A	934		4.70	4.33	
RVR	906		2.76		

DR-7 739
RVR 1063

DR-7 Velocities f/s East→West					
0.83	3.20	5.07	9.08	3.59	
4.94	4.48	4.51	4.76	1.88	
4.27	2.33	3.21	5.35	3.71	
3.55	3.40	0.41			

DR-2 Velocities f/s East-West
0.46 1.06 1.40 3.70
4.03 5.05 - middle

5-18-11

DR-5 → pond 8 d/s change
Note: West → East
Velocities f/s
0.28 0.12

DR-4 → Pts Pond 15 discharge
Dpts
- upper ptc depth: 3"
velocity 6.97
- lower ptc depth 2"
velocity 3.18

DR-1A 666
RVR 811
Velocity east to west (f/s)

1.10 2.10 3.64 3.72
5.45 3.23 4.21 2.90 3.26
2.08 3.56 3.51 3.47 1.17
2.10 2.14

DR-1 Too fast / deep to enter
velocity (floatation method): 0.99 sec,
0.89 sec

5-18-11

EB-2 - 14.43 FT

SC ~~14.43~~ Note - pipe loose.

EB-1 19.06 FT

GW-7 18.05 FT

(GW-6) 19.76 FT

GW-5 17.87

GW-4 9.16 FT

GW-3 ¹¹/₁₂ 11.09 FTGW-1 ~~19.06~~ SC

19 FT

GW-0 9.07 FT

	w/Tool Monday	5/24/11	Tuesday	12.94 12.94
800	time card	700	Load up travel	
	Expense Report	830	Rico Tool box meeting	
930	15% R working in Lab with Sam C. C	CPI	BM #1 head loop	
230	hand up for Rico T			3 ⁸⁵
	- pick up Ted B.			6 ⁵⁷
	+ shopping for supplies BM1			942
	Rebar	T		6 ³⁷
	Flagging			3 ⁸³
400	travel	CPI		2 ⁰⁰
1000	Cortez			4 ²⁰ 0 ⁰⁰

(14)



5/24/11	W/Tool snowy	5/25/11	Wednesday	Clear 60
Tuesday	40	5/25/11	Wednesday	Clear 60
Ground Water Elevation 700	pick up package			
1137 EW-1		- shop	For supplies	
EW-2A				
EB-1	18 99			
EB-2	19 46			
GW-0	9 6			
GW-1				
GW-2				
GW-3	11 30			
GW-4	14 06			
GW-5	18 50			
GW-6	18 64			
GW-7	24. 15			
GW-8	out			

Set panel points.

330 Leave site

630 Cortez panel points

(11.5)

330 Sampling		
DR-1 pH	8	8 04
Conductivity	100	213
Salinity		103
TDS		
Temp	17.3	
Dissolved O _x	O 84	
413 DR-3		
pH	6 62	
Con	1085	
Temp	23 3	
Dissolved O _x	O 51	

5/25/11

431 DR-4

PH

7.46

Cond

1141

Temp

22.9

Dissolved O₂

0.44

→

→

453 DIR-5

PH

7.45

Cond

1196

Temp

17.3

D. O₂

0.55

Σ = 30

21

5/25/11

Survey point points

845 Leave site

945 Hohol Lagoon site

(14)

Hatched

enclosed

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5/26/11 Thursday

700. shopping for sampling 237 DR-7
supplies

- waiting for sample
Bottles

120 - sampling

DR-6

PH

7⁰¹

Cond.

222

Temp.

8.⁷

Dis. Ox.

0⁸³

PH

7²⁷

Cond

171^L

Temp

9.²

Dis. Ox

0⁸²

255 DR-6

PH

6⁷⁰

Cond.

1260

Temp.

16⁰

Dis. Ox

0⁶³

145 DR-4 SW

PH 7.02

320 FB

Cond. 169.9

Temp. 8.⁸

Dis. Ox. 0⁸⁶

400 leave site travel to
SLC

1000

(14)

Appendix I

North Flume Ultrasonic Meter Data with Flowrates

Date, Time	Reading	Parameter	Depth to water (ft)	Depth from sensor to Bottom of Flume (ft)	Depth of Flow (ft)	Flow (in)	Depth of Flowrate (cfs)	Flowrate (gpm)
5/11/2011 18:30	8.48	Level	1.52	2.07	0.55	6.64	1.25	563.1
5/11/2011 18:45	8.48	Level	1.52	2.07	0.55	6.64	1.25	563.1
5/11/2011 19:00	8.48	Level	1.52	2.07	0.55	6.64	1.25	563.1
5/11/2011 19:15	8.48	Level	1.52	2.07	0.55	6.64	1.25	563.1
5/11/2011 19:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/11/2011 19:45	8.48	Level	1.52	2.07	0.55	6.64	1.25	563.1
5/11/2011 20:00	8.48	Level	1.52	2.07	0.55	6.64	1.25	563.1
5/11/2011 20:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/11/2011 20:30	8.48	Level	1.52	2.07	0.55	6.64	1.25	563.1
5/11/2011 20:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/11/2011 21:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/11/2011 21:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/11/2011 21:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/11/2011 21:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/11/2011 22:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/11/2011 22:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/11/2011 22:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/11/2011 22:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/11/2011 23:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/11/2011 23:15	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/11/2011 23:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/11/2011 23:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 0:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/12/2011 0:15	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/12/2011 0:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/12/2011 0:45	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/12/2011 1:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/12/2011 1:15	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/12/2011 1:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/12/2011 1:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 2:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/12/2011 2:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 2:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 2:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 3:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/12/2011 3:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
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5/12/2011 5:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 5:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8

5/12/2011 17:30	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/12/2011 17:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/12/2011 18:00	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/12/2011 18:15	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/12/2011 18:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 18:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
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5/12/2011 20:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
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5/12/2011 21:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 22:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 22:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 22:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 22:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 23:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 23:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 23:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/12/2011 23:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 0:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 0:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 0:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/13/2011 0:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 1:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 1:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 1:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 1:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 2:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 2:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 2:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 2:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 3:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
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5/13/2011 4:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 4:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 4:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 4:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 5:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8

5/13/2011 5:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 5:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 5:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 6:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 6:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 6:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/13/2011 6:45	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/13/2011 7:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/13/2011 7:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 7:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/13/2011 7:45	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/13/2011 8:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 8:15	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/13/2011 8:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 8:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 9:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 9:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 9:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 9:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 10:00	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/13/2011 10:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 10:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 10:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 11:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 11:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 11:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 11:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 12:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 12:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 12:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 12:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 13:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 13:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 13:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 13:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 14:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 14:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 14:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 14:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 15:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 15:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 15:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 15:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 16:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 16:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 16:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 16:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5

5/13/2011 17:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 17:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 17:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
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5/13/2011 18:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 18:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 18:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 19:00	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/13/2011 19:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 19:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 19:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 20:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 20:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 20:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/13/2011 20:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 21:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 21:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 21:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 21:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 22:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 22:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 22:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 22:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 23:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 23:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 23:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/13/2011 23:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 0:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 0:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 0:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 0:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 1:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 1:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 1:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 1:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 2:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 2:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 2:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 2:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 3:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 3:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 3:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 3:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 4:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/14/2011 4:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 4:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8

5/14/2011 4:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 5:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 5:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 5:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 5:45	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/14/2011 6:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 6:15	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/14/2011 6:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 6:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 7:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 7:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 7:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 7:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 8:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 8:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 8:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 8:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 9:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 9:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 9:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 9:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 10:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 10:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 10:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 10:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 11:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 11:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 11:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 11:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 12:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 12:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 12:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 12:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 13:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 13:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 13:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 13:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 14:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 14:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 14:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 14:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 15:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 15:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 15:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 15:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 16:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 16:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5

5/14/2011 16:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 16:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 17:00	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/14/2011 17:15	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/14/2011 17:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 17:45	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/14/2011 18:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 18:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 18:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 18:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 19:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/14/2011 19:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 19:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 19:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 20:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 20:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 20:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 20:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 21:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 21:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 21:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 21:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 22:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 22:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 22:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 22:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 23:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 23:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/14/2011 23:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/14/2011 23:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 0:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 0:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 0:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 0:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 1:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 1:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 1:30	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/15/2011 1:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 2:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 2:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 2:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 2:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 3:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 3:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 3:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 3:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 4:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7

5/15/2011 4:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 4:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 4:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 5:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 5:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 5:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 5:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 6:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 6:15	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/15/2011 6:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 6:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 7:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/15/2011 7:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 7:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 7:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 8:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 8:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 8:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 8:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 9:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 9:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/15/2011 9:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 9:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 10:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 10:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 10:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 10:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 11:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 11:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 11:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 11:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 12:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 12:15	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/15/2011 12:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 12:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 13:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 13:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 13:30	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/15/2011 13:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 14:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
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5/15/2011 14:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 14:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 15:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 15:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 15:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 15:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5

5/15/2011 16:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 16:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 16:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 16:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 17:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 17:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 17:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 17:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 18:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/15/2011 18:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
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5/15/2011 21:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 21:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 21:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 21:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 22:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 22:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 22:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 22:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 23:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 23:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 23:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/15/2011 23:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 0:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 0:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 0:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 0:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 1:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 1:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 1:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 1:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 2:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 2:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 2:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 2:45	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/16/2011 3:00	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/16/2011 3:15	8.47	Level	1.53	2.07	0.54	6.52	1.22	547.8
5/16/2011 3:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7

5/16/2011 15:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 15:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 16:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 16:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 16:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 16:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 17:00	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/16/2011 17:15	8.51	Level	1.49	2.07	0.58	7	1.36	609.8
5/16/2011 17:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 17:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 18:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 18:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 18:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 18:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 19:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 19:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 19:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 19:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 20:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 20:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 20:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 20:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 21:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 21:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 21:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 21:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 22:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 22:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 22:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 22:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 23:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/16/2011 23:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 23:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/16/2011 23:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/17/2011 0:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/17/2011 0:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/17/2011 0:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/17/2011 0:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/17/2011 1:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/17/2011 1:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/17/2011 1:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/17/2011 1:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/17/2011 2:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/17/2011 2:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/17/2011 2:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/17/2011 2:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/17/2011 3:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5

5/21/2011 13:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 13:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 13:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 13:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 14:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 14:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 14:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 14:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 15:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 15:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 15:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 15:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 16:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 16:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 16:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 16:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 17:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 17:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 17:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 17:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 18:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 18:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 18:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 18:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 19:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/21/2011 19:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 19:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 19:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 20:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 20:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 20:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/21/2011 20:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 21:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 21:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 21:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 21:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 22:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 22:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 22:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 22:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/21/2011 23:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 23:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 23:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/21/2011 23:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/22/2011 0:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/22/2011 0:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/22/2011 0:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7

5/24/2011 11:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 11:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 12:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 12:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 12:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 12:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 13:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 13:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 13:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 13:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 14:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 14:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 14:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 14:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 15:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 15:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 15:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 15:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 16:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 16:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 16:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 16:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 17:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 17:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 17:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 17:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 18:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/24/2011 18:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 18:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/24/2011 18:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 19:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/24/2011 19:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/24/2011 19:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 19:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 20:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 20:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/24/2011 20:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 20:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 21:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/24/2011 21:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/24/2011 21:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 21:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 22:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 22:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 22:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 22:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/24/2011 23:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7

5/25/2011 22:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/25/2011 23:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/25/2011 23:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/25/2011 23:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/25/2011 23:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 0:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 0:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 0:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 0:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 1:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 1:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 1:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 1:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 2:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 2:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 2:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 2:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 3:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 3:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 3:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 3:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 4:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 4:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 4:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 4:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 5:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 5:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 5:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 5:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 6:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 6:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 6:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 6:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 7:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 7:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 7:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 7:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 8:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/26/2011 8:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 8:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 8:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/26/2011 9:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/26/2011 9:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/26/2011 9:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/26/2011 9:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/26/2011 10:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/26/2011 10:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5

5/26/2011 22:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 22:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/26/2011 22:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/26/2011 23:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/26/2011 23:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 23:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/26/2011 23:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 0:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 0:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 0:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 0:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 1:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 1:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 1:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 1:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 2:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 2:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 2:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 2:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 3:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 3:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 3:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 3:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 4:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 4:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 4:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 4:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 5:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 5:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 5:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 5:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 6:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 6:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 6:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 6:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 7:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 7:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 7:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 7:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 8:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 8:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 8:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 8:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 9:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 9:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 9:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 9:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5

5/27/2011 21:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 22:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 22:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/27/2011 22:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 22:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 23:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 23:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/27/2011 23:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/27/2011 23:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 0:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/28/2011 0:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 0:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 0:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 1:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 1:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 1:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 1:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 2:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/28/2011 2:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 2:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 2:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 3:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 3:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 3:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 3:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 4:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 4:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 4:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 4:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 5:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 5:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 5:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 5:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 6:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 6:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 6:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 6:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 7:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 7:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 7:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 7:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 8:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/28/2011 8:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 8:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 8:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/28/2011 9:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/28/2011 9:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5

5/29/2011 20:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 21:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 21:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 21:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 21:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 22:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 22:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 22:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 22:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 23:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 23:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 23:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/29/2011 23:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/30/2011 0:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/30/2011 0:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/30/2011 0:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/30/2011 0:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 1:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 1:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/30/2011 1:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 1:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 2:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 2:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 2:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 2:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 3:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 3:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 3:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 3:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/30/2011 4:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/30/2011 4:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 4:30	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/30/2011 4:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 5:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/30/2011 5:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 5:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 5:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/30/2011 6:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/30/2011 6:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/30/2011 6:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 6:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/30/2011 7:00	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 7:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/30/2011 7:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/30/2011 7:45	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/30/2011 8:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/30/2011 8:15	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0

5/31/2011 8:00	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/31/2011 8:15	8.52	Level	1.48	2.07	0.59	7.12	1.39	625.7
5/31/2011 8:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 8:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 9:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 9:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 9:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 9:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 10:00	8.61	Level	1.39	2.07	0.68	8.2	1.73	774.5
5/31/2011 10:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 10:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 10:45	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 11:00	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 11:15	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 11:30	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 11:45	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 12:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 12:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 12:30	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 12:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 13:00	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 13:15	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 13:30	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 13:45	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 14:00	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 14:15	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 14:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 14:45	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 15:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 15:15	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 15:30	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 15:45	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 16:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 16:15	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 16:30	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 16:45	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 17:00	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 17:15	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 17:30	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 17:45	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 18:00	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 18:15	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 18:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 18:45	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 19:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 19:15	8.6	Level	1.4	2.07	0.67	8.08	1.69	757.4
5/31/2011 19:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5

5/31/2011 19:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 20:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 20:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 20:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 20:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 21:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 21:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 21:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 21:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 22:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 22:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 22:30	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 22:45	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 23:00	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 23:15	8.56	Level	1.44	2.07	0.63	7.6	1.54	690.5
5/31/2011 23:30	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0
5/31/2011 23:45	8.57	Level	1.43	2.07	0.64	7.72	1.58	707.0

Appendix H

South Flume Orpheus Mini Data with Flowrates

Date	Time	Depth from top of flume to water (in)	Depth of Flume Total (in)	Depth of Flow (in)	Flowrate (cfs)	Flowrate (gpm)
5/12/2011	3:00:00 PM	22.8	30	7.2	1.42	636.4
5/12/2011	4:00:00 PM	22.8	30	7.2	1.42	636.4
5/12/2011	5:00:00 PM	22.8	30	7.2	1.42	636.4
5/12/2011	6:00:00 PM	22.8	30	7.2	1.42	636.4
5/12/2011	7:00:00 PM	22.7	30	7.3	1.45	649.8
5/12/2011	8:00:00 PM	22.8	30	7.2	1.42	636.4
5/12/2011	9:00:00 PM	22.8	30	7.2	1.42	636.4
5/12/2011	10:00:00 PM	22.8	30	7.2	1.42	636.4
5/12/2011	11:00:00 PM	22.8	30	7.2	1.42	636.4
5/13/2011	12:00:00 AM	22.8	30	7.2	1.42	636.4
5/13/2011	1:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	2:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	3:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	4:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	5:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	6:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	7:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	8:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	9:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	10:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	11:00:00 AM	22.9	30	7.1	1.39	623.1
5/13/2011	12:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	1:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	2:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	3:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	4:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	5:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	6:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	7:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	8:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	9:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	10:00:00 PM	22.9	30	7.1	1.39	623.1
5/13/2011	11:00:00 PM	23	30	7	1.36	609.8
5/14/2011	12:00:00 AM	23	30	7	1.36	609.8
5/14/2011	1:00:00 AM	23	30	7	1.36	609.8
5/14/2011	2:00:00 AM	23	30	7	1.36	609.8
5/14/2011	3:00:00 AM	23.1	30	6.9	1.33	596.7
5/14/2011	4:00:00 AM	23	30	7	1.36	609.8
5/14/2011	5:00:00 AM	23	30	7	1.36	609.8
5/14/2011	6:00:00 AM	23.1	30	6.9	1.33	596.7
5/14/2011	7:00:00 AM	23.1	30	6.9	1.33	596.7
5/14/2011	8:00:00 AM	23.1	30	6.9	1.33	596.7
5/14/2011	9:00:00 AM	23.1	30	6.9	1.33	596.7
5/14/2011	10:00:00 AM	23	30	7	1.36	609.8
5/14/2011	11:00:00 AM	23	30	7	1.36	609.8

5/14/2011	12:00:00 PM	23	30	7	1.36	609.8
5/14/2011	1:00:00 PM	23	30	7	1.36	609.8
5/14/2011	2:00:00 PM	23	30	7	1.36	609.8
5/14/2011	3:00:00 PM	23	30	7	1.36	609.8
5/14/2011	4:00:00 PM	23	30	7	1.36	609.8
5/14/2011	5:00:00 PM	23	30	7	1.36	609.8
5/14/2011	6:00:00 PM	23	30	7	1.36	609.8
5/14/2011	7:00:00 PM	23	30	7	1.36	609.8
5/14/2011	8:00:00 PM	23	30	7	1.36	609.8
5/14/2011	9:00:00 PM	23	30	7	1.36	609.8
5/14/2011	10:00:00 PM	23	30	7	1.36	609.8
5/14/2011	11:00:00 PM	23	30	7	1.36	609.8
5/15/2011	12:00:00 AM	23	30	7	1.36	609.8
5/15/2011	1:00:00 AM	23	30	7	1.36	609.8
5/15/2011	2:00:00 AM	23	30	7	1.36	609.8
5/15/2011	3:00:00 AM	23	30	7	1.36	609.8
5/15/2011	4:00:00 AM	23	30	7	1.36	609.8
5/15/2011	5:00:00 AM	23	30	7	1.36	609.8
5/15/2011	6:00:00 AM	23	30	7	1.36	609.8
5/15/2011	7:00:00 AM	23	30	7	1.36	609.8
5/15/2011	8:00:00 AM	23	30	7	1.36	609.8
5/15/2011	9:00:00 AM	23	30	7	1.36	609.8
5/15/2011	10:00:00 AM	23	30	7	1.36	609.8
5/15/2011	11:00:00 AM	23	30	7	1.36	609.8
5/15/2011	12:00:00 PM	22.9	30	7.1	1.39	623.1
5/15/2011	1:00:00 PM	22.9	30	7.1	1.39	623.1
5/15/2011	2:00:00 PM	22.9	30	7.1	1.39	623.1
5/15/2011	3:00:00 PM	22.9	30	7.1	1.39	623.1
5/15/2011	4:00:00 PM	23	30	7	1.36	609.8
5/15/2011	5:00:00 PM	23	30	7	1.36	609.8
5/15/2011	6:00:00 PM	23	30	7	1.36	609.8
5/15/2011	7:00:00 PM	23	30	7	1.36	609.8
5/15/2011	8:00:00 PM	23.1	30	6.9	1.33	596.7
5/15/2011	9:00:00 PM	23.1	30	6.9	1.33	596.7
5/15/2011	10:00:00 PM	23.1	30	6.9	1.33	596.7
5/15/2011	11:00:00 PM	23	30	7	1.36	609.8
5/16/2011	12:00:00 AM	23	30	7	1.36	609.8
5/16/2011	1:00:00 AM	23	30	7	1.36	609.8
5/16/2011	2:00:00 AM	23	30	7	1.36	609.8
5/16/2011	3:00:00 AM	23	30	7	1.36	609.8
5/16/2011	4:00:00 AM	23	30	7	1.36	609.8
5/16/2011	5:00:00 AM	23	30	7	1.36	609.8
5/16/2011	6:00:00 AM	23	30	7	1.36	609.8
5/16/2011	7:00:00 AM	23	30	7	1.36	609.8
5/16/2011	8:00:00 AM	23	30	7	1.36	609.8
5/16/2011	9:00:00 AM	23	30	7	1.36	609.8
5/16/2011	10:00:00 AM	23	30	7	1.36	609.8

5/16/2011	11:00:00 AM	23	30	7	1.36	609.8
5/16/2011	12:00:00 PM	23	30	7	1.36	609.8
5/16/2011	1:00:00 PM	22.9	30	7.1	1.39	623.1
5/16/2011	2:00:00 PM	23	30	7	1.36	609.8
5/16/2011	3:00:00 PM	23	30	7	1.36	609.8
5/16/2011	4:00:00 PM	23	30	7	1.36	609.8
5/16/2011	5:00:00 PM	23	30	7	1.36	609.8
5/16/2011	6:00:00 PM	23.1	30	6.9	1.33	596.7
5/16/2011	7:00:00 PM	23.1	30	6.9	1.33	596.7
5/16/2011	8:00:00 PM	23.1	30	6.9	1.33	596.7
5/16/2011	9:00:00 PM	23.1	30	6.9	1.33	596.7
5/16/2011	10:00:00 PM	23.1	30	6.9	1.33	596.7
5/16/2011	11:00:00 PM	23.1	30	6.9	1.33	596.7
5/17/2011	12:00:00 AM	23.1	30	6.9	1.33	596.7
5/17/2011	1:00:00 AM	23.1	30	6.9	1.33	596.7
5/17/2011	2:00:00 AM	23.1	30	6.9	1.33	596.7
5/17/2011	3:00:00 AM	23.1	30	6.9	1.33	596.7
5/17/2011	4:00:00 AM	23.1	30	6.9	1.33	596.7
5/17/2011	5:00:00 AM	23.1	30	6.9	1.33	596.7
5/17/2011	6:00:00 AM	23	30	7	1.36	609.8
5/17/2011	7:00:00 AM	23	30	7	1.36	609.8
5/17/2011	8:00:00 AM	23	30	7	1.36	609.8
5/17/2011	9:00:00 AM	23	30	7	1.36	609.8
5/17/2011	10:00:00 AM	22.9	30	7.1	1.39	623.1
5/17/2011	11:00:00 AM	22.9	30	7.1	1.39	623.1
5/17/2011	12:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	1:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	2:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	3:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	4:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	5:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	6:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	7:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	8:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	9:00:00 PM	22.9	30	7.1	1.39	623.1
5/17/2011	10:00:00 PM	23	30	7	1.36	609.8
5/17/2011	11:00:00 PM	23	30	7	1.36	609.8
5/18/2011	12:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	1:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	2:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	3:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	4:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	5:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	6:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	7:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	8:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	9:00:00 AM	22.9	30	7.1	1.39	623.1

5/18/2011	10:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	11:00:00 AM	22.9	30	7.1	1.39	623.1
5/18/2011	12:00:00 PM	22.8	30	7.2	1.42	636.4
5/18/2011	1:00:00 PM	22.8	30	7.2	1.42	636.4
5/18/2011	2:00:00 PM	22.7	30	7.3	1.45	649.8
5/18/2011	3:00:00 PM	22.6	30	7.4	1.48	663.2
5/18/2011	4:00:00 PM	22.4	30	7.6	1.54	690.5
5/18/2011	5:00:00 PM	22.2	30	7.8	1.60	718.1
5/18/2011	6:00:00 PM	22.1	30	7.9	1.63	732.1
5/18/2011	7:00:00 PM	22.1	30	7.9	1.63	732.1
5/18/2011	8:00:00 PM	22.1	30	7.9	1.63	732.1
5/18/2011	9:00:00 PM	22.1	30	7.9	1.63	732.1
5/18/2011	10:00:00 PM	22.2	30	7.8	1.60	718.1
5/18/2011	11:00:00 PM	22.3	30	7.7	1.57	704.3
5/19/2011	12:00:00 AM	22.3	30	7.7	1.57	704.3
5/19/2011	1:00:00 AM	22.4	30	7.6	1.54	690.5
5/19/2011	2:00:00 AM	22.5	30	7.5	1.51	676.8
5/19/2011	3:00:00 AM	22.5	30	7.5	1.51	676.8
5/19/2011	4:00:00 AM	22.5	30	7.5	1.51	676.8
5/19/2011	5:00:00 AM	22.5	30	7.5	1.51	676.8
5/19/2011	6:00:00 AM	22.5	30	7.5	1.51	676.8
5/19/2011	7:00:00 AM	22.5	30	7.5	1.51	676.8
5/19/2011	8:00:00 AM	22.5	30	7.5	1.51	676.8
5/19/2011	9:00:00 AM	22.5	30	7.5	1.51	676.8
5/19/2011	10:00:00 AM	22.6	30	7.4	1.48	663.2
5/19/2011	11:00:00 AM	22.6	30	7.4	1.48	663.2
5/19/2011	12:00:00 PM	22.6	30	7.4	1.48	663.2
5/19/2011	1:00:00 PM	22.6	30	7.4	1.48	663.2
5/19/2011	2:00:00 PM	22.5	30	7.5	1.51	676.8
5/19/2011	3:00:00 PM	22.6	30	7.4	1.48	663.2
5/19/2011	4:00:00 PM	22.6	30	7.4	1.48	663.2
5/19/2011	5:00:00 PM	22.6	30	7.4	1.48	663.2
5/19/2011	6:00:00 PM	22.6	30	7.4	1.48	663.2
5/19/2011	7:00:00 PM	22.6	30	7.4	1.48	663.2
5/19/2011	8:00:00 PM	22.6	30	7.4	1.48	663.2
5/19/2011	9:00:00 PM	22.7	30	7.3	1.45	649.8
5/19/2011	10:00:00 PM	22.7	30	7.3	1.45	649.8
5/19/2011	11:00:00 PM	22.7	30	7.3	1.45	649.8
5/20/2011	12:00:00 AM	22.7	30	7.3	1.45	649.8
5/20/2011	1:00:00 AM	22.6	30	7.4	1.48	663.2
5/20/2011	2:00:00 AM	22.5	30	7.5	1.51	676.8
5/20/2011	3:00:00 AM	22.4	30	7.6	1.54	690.5
5/20/2011	4:00:00 AM	22.4	30	7.6	1.54	690.5
5/20/2011	5:00:00 AM	22.4	30	7.6	1.54	690.5
5/20/2011	6:00:00 AM	22.4	30	7.6	1.54	690.5
5/20/2011	7:00:00 AM	22.4	30	7.6	1.54	690.5
5/20/2011	8:00:00 AM	22.4	30	7.6	1.54	690.5

5/20/2011	9:00:00 AM	22.4	30	7.6	1.54	690.5
5/20/2011	10:00:00 AM	22.5	30	7.5	1.51	676.8
5/20/2011	11:00:00 AM	22.5	30	7.5	1.51	676.8
5/20/2011	12:00:00 PM	22.5	30	7.5	1.51	676.8
5/20/2011	1:00:00 PM	22.5	30	7.5	1.51	676.8
5/20/2011	2:00:00 PM	22.5	30	7.5	1.51	676.8
5/20/2011	3:00:00 PM	22.5	30	7.5	1.51	676.8
5/20/2011	4:00:00 PM	22.4	30	7.6	1.54	690.5
5/20/2011	5:00:00 PM	22.3	30	7.7	1.57	704.3
5/20/2011	6:00:00 PM	22.2	30	7.8	1.60	718.1
5/20/2011	7:00:00 PM	22.1	30	7.9	1.63	732.1
5/20/2011	8:00:00 PM	22	30	8	1.66	746.1
5/20/2011	9:00:00 PM	22	30	8	1.66	746.1
5/20/2011	10:00:00 PM	22.1	30	7.9	1.63	732.1
5/20/2011	11:00:00 PM	22.1	30	7.9	1.63	732.1
5/21/2011	12:00:00 AM	22.1	30	7.9	1.63	732.1
5/21/2011	1:00:00 AM	22.2	30	7.8	1.60	718.1
5/21/2011	2:00:00 AM	22.3	30	7.7	1.57	704.3
5/21/2011	3:00:00 AM	22.3	30	7.7	1.57	704.3
5/21/2011	4:00:00 AM	22.4	30	7.6	1.54	690.5
5/21/2011	5:00:00 AM	22.4	30	7.6	1.54	690.5
5/21/2011	6:00:00 AM	22.4	30	7.6	1.54	690.5
5/21/2011	7:00:00 AM	22.5	30	7.5	1.51	676.8
5/21/2011	8:00:00 AM	22.5	30	7.5	1.51	676.8
5/21/2011	9:00:00 AM	22.5	30	7.5	1.51	676.8
5/21/2011	10:00:00 AM	22.6	30	7.4	1.48	663.2
5/21/2011	11:00:00 AM	22.6	30	7.4	1.48	663.2
5/21/2011	12:00:00 PM	22.6	30	7.4	1.48	663.2
5/21/2011	1:00:00 PM	22.6	30	7.4	1.48	663.2
5/21/2011	2:00:00 PM	22.6	30	7.4	1.48	663.2
5/21/2011	3:00:00 PM	22.7	30	7.3	1.45	649.8
5/21/2011	4:00:00 PM	22.6	30	7.4	1.48	663.2
5/21/2011	5:00:00 PM	22.7	30	7.3	1.45	649.8
5/21/2011	6:00:00 PM	22.7	30	7.3	1.45	649.8
5/21/2011	7:00:00 PM	22.7	30	7.3	1.45	649.8
5/21/2011	8:00:00 PM	22.7	30	7.3	1.45	649.8
5/21/2011	9:00:00 PM	22.7	30	7.3	1.45	649.8
5/21/2011	10:00:00 PM	22.8	30	7.2	1.42	636.4
5/21/2011	11:00:00 PM	22.7	30	7.3	1.45	649.8
5/22/2011	12:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	1:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	2:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	3:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	4:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	5:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	6:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	7:00:00 AM	22.8	30	7.2	1.42	636.4

5/22/2011	8:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	9:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	10:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	11:00:00 AM	22.8	30	7.2	1.42	636.4
5/22/2011	12:00:00 PM	22.8	30	7.2	1.42	636.4
5/22/2011	1:00:00 PM	22.8	30	7.2	1.42	636.4
5/22/2011	2:00:00 PM	22.8	30	7.2	1.42	636.4
5/22/2011	3:00:00 PM	22.8	30	7.2	1.42	636.4
5/22/2011	4:00:00 PM	22.8	30	7.2	1.42	636.4
5/22/2011	5:00:00 PM	22.8	30	7.2	1.42	636.4
5/22/2011	6:00:00 PM	22.9	30	7.1	1.39	623.1
5/22/2011	7:00:00 PM	22.8	30	7.2	1.42	636.4
5/22/2011	8:00:00 PM	22.8	30	7.2	1.42	636.4
5/22/2011	9:00:00 PM	22.9	30	7.1	1.39	623.1
5/22/2011	10:00:00 PM	22.9	30	7.1	1.39	623.1
5/22/2011	11:00:00 PM	22.9	30	7.1	1.39	623.1
5/23/2011	12:00:00 AM	22.9	30	7.1	1.39	623.1
5/23/2011	1:00:00 AM	22.9	30	7.1	1.39	623.1
5/23/2011	2:00:00 AM	22.9	30	7.1	1.39	623.1
5/23/2011	3:00:00 AM	22.8	30	7.2	1.42	636.4
5/23/2011	4:00:00 AM	22.8	30	7.2	1.42	636.4
5/23/2011	5:00:00 AM	22.8	30	7.2	1.42	636.4
5/23/2011	6:00:00 AM	22.8	30	7.2	1.42	636.4
5/23/2011	7:00:00 AM	22.8	30	7.2	1.42	636.4
5/23/2011	8:00:00 AM	22.8	30	7.2	1.42	636.4
5/23/2011	9:00:00 AM	22.8	30	7.2	1.42	636.4
5/23/2011	10:00:00 AM	22.8	30	7.2	1.42	636.4
5/23/2011	11:00:00 AM	22.8	30	7.2	1.42	636.4
5/23/2011	12:00:00 PM	22.8	30	7.2	1.42	636.4
5/23/2011	1:00:00 PM	22.8	30	7.2	1.42	636.4
5/23/2011	2:00:00 PM	22.8	30	7.2	1.42	636.4
5/23/2011	3:00:00 PM	22.8	30	7.2	1.42	636.4
5/23/2011	4:00:00 PM	22.8	30	7.2	1.42	636.4
5/23/2011	5:00:00 PM	22.9	30	7.1	1.39	623.1
5/23/2011	6:00:00 PM	22.8	30	7.2	1.42	636.4
5/23/2011	7:00:00 PM	22.9	30	7.1	1.39	623.1
5/23/2011	8:00:00 PM	22.9	30	7.1	1.39	623.1
5/23/2011	9:00:00 PM	22.9	30	7.1	1.39	623.1
5/23/2011	10:00:00 PM	22.9	30	7.1	1.39	623.1
5/23/2011	11:00:00 PM	22.9	30	7.1	1.39	623.1
5/24/2011	12:00:00 AM	22.8	30	7.2	1.42	636.4
5/24/2011	1:00:00 AM	22.9	30	7.1	1.39	623.1
5/24/2011	2:00:00 AM	22.8	30	7.2	1.42	636.4
5/24/2011	3:00:00 AM	22.8	30	7.2	1.42	636.4
5/24/2011	4:00:00 AM	22.8	30	7.2	1.42	636.4
5/24/2011	5:00:00 AM	22.8	30	7.2	1.42	636.4
5/24/2011	6:00:00 AM	22.8	30	7.2	1.42	636.4

5/24/2011	7:00:00 AM	22.8	30	7.2	1.42	636.4
5/24/2011	8:00:00 AM	22.8	30	7.2	1.42	636.4
5/24/2011	9:00:00 AM	22.7	30	7.3	1.45	649.8
5/24/2011	10:00:00 AM	22.6	30	7.4	1.48	663.2
5/24/2011	11:00:00 AM	22.6	30	7.4	1.48	663.2
5/24/2011	12:00:00 PM	22.6	30	7.4	1.48	663.2
5/24/2011	1:00:00 PM	22.5	30	7.5	1.51	676.8
5/24/2011	2:00:00 PM	22.5	30	7.5	1.51	676.8
5/24/2011	3:00:00 PM	22.4	30	7.6	1.54	690.5
5/24/2011	4:00:00 PM	22.3	30	7.7	1.57	704.3
5/24/2011	5:00:00 PM	22.3	30	7.7	1.57	704.3
5/24/2011	6:00:00 PM	22.2	30	7.8	1.60	718.1
5/24/2011	7:00:00 PM	22.2	30	7.8	1.60	718.1
5/24/2011	8:00:00 PM	22.3	30	7.7	1.57	704.3
5/24/2011	9:00:00 PM	22.3	30	7.7	1.57	704.3
5/24/2011	10:00:00 PM	22.4	30	7.6	1.54	690.5
5/24/2011	11:00:00 PM	22.4	30	7.6	1.54	690.5
5/25/2011	12:00:00 AM	22.5	30	7.5	1.51	676.8
5/25/2011	1:00:00 AM	22.5	30	7.5	1.51	676.8
5/25/2011	2:00:00 AM	22.5	30	7.5	1.51	676.8
5/25/2011	3:00:00 AM	22.5	30	7.5	1.51	676.8
5/25/2011	4:00:00 AM	22.5	30	7.5	1.51	676.8
5/25/2011	5:00:00 AM	22.6	30	7.4	1.48	663.2
5/25/2011	6:00:00 AM	22.6	30	7.4	1.48	663.2
5/25/2011	7:00:00 AM	22.6	30	7.4	1.48	663.2
5/25/2011	8:00:00 AM	22.6	30	7.4	1.48	663.2
5/25/2011	9:00:00 AM	22.7	30	7.3	1.45	649.8
5/25/2011	10:00:00 AM	22.7	30	7.3	1.45	649.8
5/25/2011	11:00:00 AM	22.7	30	7.3	1.45	649.8
5/25/2011	12:00:00 PM	22.7	30	7.3	1.45	649.8
5/25/2011	1:00:00 PM	22.7	30	7.3	1.45	649.8
5/25/2011	2:00:00 PM	22.7	30	7.3	1.45	649.8
5/25/2011	3:00:00 PM	22.7	30	7.3	1.45	649.8
5/25/2011	4:00:00 PM	22.7	30	7.3	1.45	649.8
5/25/2011	5:00:00 PM	22.7	30	7.3	1.45	649.8
5/25/2011	6:00:00 PM	22.8	30	7.2	1.42	636.4
5/25/2011	7:00:00 PM	22.8	30	7.2	1.42	636.4
5/25/2011	8:00:00 PM	22.8	30	7.2	1.42	636.4
5/25/2011	9:00:00 PM	22.8	30	7.2	1.42	636.4
5/25/2011	10:00:00 PM	22.8	30	7.2	1.42	636.4
5/25/2011	11:00:00 PM	22.8	30	7.2	1.42	636.4
5/26/2011	12:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	1:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	2:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	3:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	4:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	5:00:00 AM	22.8	30	7.2	1.42	636.4

5/26/2011	6:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	7:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	8:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	9:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	10:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	11:00:00 AM	22.8	30	7.2	1.42	636.4
5/26/2011	12:00:00 PM	22.7	30	7.3	1.45	649.8
5/26/2011	1:00:00 PM	22.8	30	7.2	1.42	636.4
5/26/2011	2:00:00 PM	22.8	30	7.2	1.42	636.4
5/26/2011	3:00:00 PM	22.8	30	7.2	1.42	636.4
5/26/2011	4:00:00 PM	22.9	30	7.1	1.39	623.1
5/26/2011	5:00:00 PM	22.9	30	7.1	1.39	623.1
5/26/2011	6:00:00 PM	22.9	30	7.1	1.39	623.1
5/26/2011	7:00:00 PM	23	30	7	1.36	609.8
5/26/2011	8:00:00 PM	22.9	30	7.1	1.39	623.1
5/26/2011	9:00:00 PM	23	30	7	1.36	609.8
5/26/2011	10:00:00 PM	22.9	30	7.1	1.39	623.1
5/26/2011	11:00:00 PM	22.9	30	7.1	1.39	623.1
5/27/2011	12:00:00 AM	22.9	30	7.1	1.39	623.1
5/27/2011	1:00:00 AM	22.9	30	7.1	1.39	623.1
5/27/2011	2:00:00 AM	22.8	30	7.2	1.42	636.4
5/27/2011	3:00:00 AM	22.8	30	7.2	1.42	636.4
5/27/2011	4:00:00 AM	22.8	30	7.2	1.42	636.4
5/27/2011	5:00:00 AM	22.8	30	7.2	1.42	636.4
5/27/2011	6:00:00 AM	22.8	30	7.2	1.42	636.4
5/27/2011	7:00:00 AM	22.8	30	7.2	1.42	636.4
5/27/2011	8:00:00 AM	22.8	30	7.2	1.42	636.4
5/27/2011	9:00:00 AM	22.8	30	7.2	1.42	636.4
5/27/2011	10:00:00 AM	22.8	30	7.2	1.42	636.4
5/27/2011	11:00:00 AM	22.7	30	7.3	1.45	649.8
5/27/2011	12:00:00 PM	22.7	30	7.3	1.45	649.8
5/27/2011	1:00:00 PM	22.8	30	7.2	1.42	636.4
5/27/2011	2:00:00 PM	22.8	30	7.2	1.42	636.4
5/27/2011	3:00:00 PM	22.7	30	7.3	1.45	649.8
5/27/2011	4:00:00 PM	22.8	30	7.2	1.42	636.4
5/27/2011	5:00:00 PM	22.8	30	7.2	1.42	636.4
5/27/2011	6:00:00 PM	22.8	30	7.2	1.42	636.4
5/27/2011	7:00:00 PM	22.8	30	7.2	1.42	636.4
5/27/2011	8:00:00 PM	22.9	30	7.1	1.39	623.1
5/27/2011	9:00:00 PM	22.9	30	7.1	1.39	623.1
5/27/2011	10:00:00 PM	22.8	30	7.2	1.42	636.4
5/27/2011	11:00:00 PM	22.9	30	7.1	1.39	623.1
5/28/2011	12:00:00 AM	22.8	30	7.2	1.42	636.4
5/28/2011	1:00:00 AM	22.8	30	7.2	1.42	636.4
5/28/2011	2:00:00 AM	22.8	30	7.2	1.42	636.4
5/28/2011	3:00:00 AM	22.8	30	7.2	1.42	636.4
5/28/2011	4:00:00 AM	22.8	30	7.2	1.42	636.4

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5/28/2011	7:00:00 AM	22.7	30	7.3	1.45	649.8
5/28/2011	8:00:00 AM	22.8	30	7.2	1.42	636.4
5/28/2011	9:00:00 AM	22.7	30	7.3	1.45	649.8
5/28/2011	10:00:00 AM	22.7	30	7.3	1.45	649.8
5/28/2011	11:00:00 AM	22.7	30	7.3	1.45	649.8
5/28/2011	12:00:00 PM	22.7	30	7.3	1.45	649.8
5/28/2011	1:00:00 PM	22.7	30	7.3	1.45	649.8
5/28/2011	2:00:00 PM	22.8	30	7.2	1.42	636.4
5/28/2011	3:00:00 PM	22.7	30	7.3	1.45	649.8
5/28/2011	4:00:00 PM	22.8	30	7.2	1.42	636.4
5/28/2011	5:00:00 PM	22.8	30	7.2	1.42	636.4
5/28/2011	6:00:00 PM	22.8	30	7.2	1.42	636.4
5/28/2011	7:00:00 PM	22.8	30	7.2	1.42	636.4
5/28/2011	8:00:00 PM	22.8	30	7.2	1.42	636.4
5/28/2011	9:00:00 PM	22.8	30	7.2	1.42	636.4
5/28/2011	10:00:00 PM	22.8	30	7.2	1.42	636.4
5/28/2011	11:00:00 PM	22.8	30	7.2	1.42	636.4
5/29/2011	12:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	1:00:00 AM	22.8	30	7.2	1.42	636.4
5/29/2011	2:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	3:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	4:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	5:00:00 AM	22.8	30	7.2	1.42	636.4
5/29/2011	6:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	7:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	8:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	9:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	10:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	11:00:00 AM	22.7	30	7.3	1.45	649.8
5/29/2011	12:00:00 PM	22.7	30	7.3	1.45	649.8
5/29/2011	1:00:00 PM	22.7	30	7.3	1.45	649.8
5/29/2011	2:00:00 PM	22.8	30	7.2	1.42	636.4
5/29/2011	3:00:00 PM	22.7	30	7.3	1.45	649.8
5/29/2011	4:00:00 PM	22.9	30	7.1	1.39	623.1
5/29/2011	5:00:00 PM	22.8	30	7.2	1.42	636.4
5/29/2011	6:00:00 PM	22.8	30	7.2	1.42	636.4
5/29/2011	7:00:00 PM	22.9	30	7.1	1.39	623.1
5/29/2011	8:00:00 PM	22.9	30	7.1	1.39	623.1
5/29/2011	9:00:00 PM	22.9	30	7.1	1.39	623.1
5/29/2011	10:00:00 PM	22.8	30	7.2	1.42	636.4
5/29/2011	11:00:00 PM	22.8	30	7.2	1.42	636.4
5/30/2011	12:00:00 AM	22.8	30	7.2	1.42	636.4
5/30/2011	1:00:00 AM	22.8	30	7.2	1.42	636.4
5/30/2011	2:00:00 AM	22.8	30	7.2	1.42	636.4
5/30/2011	3:00:00 AM	22.8	30	7.2	1.42	636.4

5/30/2011	4:00:00 AM	22.8	30	7.2	1.42	636.4
5/30/2011	5:00:00 AM	22.7	30	7.3	1.45	649.8
5/30/2011	6:00:00 AM	22.7	30	7.3	1.45	649.8
5/30/2011	7:00:00 AM	22.7	30	7.3	1.45	649.8
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5/30/2011	9:00:00 AM	22.7	30	7.3	1.45	649.8
5/30/2011	10:00:00 AM	22.7	30	7.3	1.45	649.8
5/30/2011	11:00:00 AM	22.7	30	7.3	1.45	649.8
5/30/2011	12:00:00 PM	22.7	30	7.3	1.45	649.8
5/30/2011	1:00:00 PM	22.7	30	7.3	1.45	649.8
5/30/2011	2:00:00 PM	22.7	30	7.3	1.45	649.8
5/30/2011	3:00:00 PM	22.8	30	7.2	1.42	636.4
5/30/2011	4:00:00 PM	22.7	30	7.3	1.45	649.8
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5/30/2011	11:00:00 PM	22.8	30	7.2	1.42	636.4
5/31/2011	12:00:00 AM	22.8	30	7.2	1.42	636.4
5/31/2011	1:00:00 AM	22.8	30	7.2	1.42	636.4
5/31/2011	2:00:00 AM	22.8	30	7.2	1.42	636.4
5/31/2011	3:00:00 AM	22.8	30	7.2	1.42	636.4
5/31/2011	4:00:00 AM	22.8	30	7.2	1.42	636.4
5/31/2011	5:00:00 AM	22.7	30	7.3	1.45	649.8
5/31/2011	6:00:00 AM	22.7	30	7.3	1.45	649.8
5/31/2011	7:00:00 AM	22.8	30	7.2	1.42	636.4
5/31/2011	8:00:00 AM	22.7	30	7.3	1.45	649.8
5/31/2011	9:00:00 AM	22.7	30	7.3	1.45	649.8
5/31/2011	10:00:00 AM	22.7	30	7.3	1.45	649.8
5/31/2011	11:00:00 AM	22.7	30	7.3	1.45	649.8
5/31/2011	12:00:00 PM	22.7	30	7.3	1.45	649.8
5/31/2011	1:00:00 PM	22.6	30	7.4	1.48	663.2
5/31/2011	2:00:00 PM	22.7	30	7.3	1.45	649.8
5/31/2011	3:00:00 PM	22.7	30	7.3	1.45	649.8
5/31/2011	4:00:00 PM	22.7	30	7.3	1.45	649.8
5/31/2011	5:00:00 PM	22.7	30	7.3	1.45	649.8
5/31/2011	6:00:00 PM	22.7	30	7.3	1.45	649.8
5/31/2011	7:00:00 PM	22.7	30	7.3	1.45	649.8
5/31/2011	8:00:00 PM	22.7	30	7.3	1.45	649.8
5/31/2011	9:00:00 PM	22.7	30	7.3	1.45	649.8
5/31/2011	10:00:00 PM	22.8	30	7.2	1.42	636.4
5/31/2011	11:00:00 PM	22.7	30	7.3	1.45	649.8